Further Steps to School Readiness

2009 Evaluation of the South Carolina First Steps to School Readiness Initiatives

Kimberly Browning, Ph.D.
Zongping Xiang, M.A.

11/10/2010

About The High/Scope Educational Research Foundation

The High/Scope Educational Research Foundation is an independent, nonprofit 501(c) 3 organization with headquarters in Ypsilanti, Michigan. Founded in 1970, High/Scope's mission is to lift lives through education so everyone can succeed in life and contribute to society. Its vision is widespread participatory education in which students and teachers are partners in shaping the learning experience. To this end, it engages in evaluative research, development of curriculum, training, and assessment materials, and dissemination through educational services and publishing. These activities target teachers and service workers, primarily in early childhood programs and also in elementary schools and out-of-school youth programs. It also disseminates research findings to those who influence children's lives, such as teachers, service workers, parents, administrators, policymakers, academics, and researchers. The Foundation also has initiatives in early childhood literacy and elementary education through movement.

Letter from the Three Person External Evaluation Panel

Over the past year and a half we have had the pleasure of working with the HighScope Educational Research Foundation to oversee the state mandated evaluation of the South Carolina First Steps to School Readiness initiative. The law which created First Steps provided for the establishment and enhancement of services directed toward young children and their families. It also established an evaluation process for monitoring and improving the effectiveness of First Steps. Under the law, an evaluation of the effectiveness of First Steps is to be conducted by an external evaluator and an evaluation report is to be provided to the South Carolina General Assembly every three years. The legislation also stipulated that the external evaluation be supervised by a three-person committee with two committee members to be appointed by the General Assembly and one by the First Steps Board of Trustees. The members of the three-person committee have worked with the First Steps Board of Trustees and the Office of South Carolina First Steps to oversee the external evaluation presented herein.

The First Steps Board of Trustees contracted with the HighScope Educational Research Foundation to conduct this external evaluation. The HighScope Educational Research Foundation is a non-profit, non-partisan research organization in Ypsilanti, Michigan that focuses on research in the areas of early childhood development and education. The three-person committee has worked closely with HighScope researchers to ensure that the evaluation is impartial, comprehensive and instructive. We endorse this report as possessing each of these qualities.

We appreciate the cooperation of the many groups that have contributed to this evaluation. We were pleasantly surprised to see that many of the recommendations of the 2006 evaluation have been implemented; however there is still work to be done. Many of the outcomes presented to us by HighScope indicated that First Steps is having tremendous success in identifying the poorest of the poor for much need services. We were intrigued that the partnership between First Steps and private education facilities suggests some promising results - similar to those between the partnership between First Steps and public education, though potentially for less expense. One concern of the panel however is the funding inconsistencies between the classroom aspects of First Steps and the parenting aspects of the program. There are much larger amounts of funds allocated for this First Steps initiative and while we agree that parenting is an integral part of education, we feel that the stated purpose of First Steps requires a more proportionate funding formula and hope the legislature will evaluate this when funding First Steps in the future.

Several data access issues resulted in unanticipated delays in the completion of this report. These included delayed consents for the use of partner agency data and the initial denial of key Medicaid data - eventually provided following the resolution of privacy concerns. Most notably, analysis was

delayed for a period of months during which High/Scope was required to manually link several voluminous state data sets. The panel found the delayed data submission by the partner agencies to be an unacceptable roadblock which contributed directly to the lengthy delay in presenting this evaluation in a timely manner. The panel found the hold-ups frustrating and unacceptable and it contributed directly to the lengthy delay in having this evaluation presented in a timely manner. It is our suggestion that in the next evaluation process more direction from the legislature is placed on partner agencies to assist First Steps, and the evaluating research provider, to ensure this roadblock does not occur again.

Overall, this process was a true partnership between the external evaluation panel and the HighScope Educational Research Foundation. This evaluation focuses on the implementation of recommendations from the last First Steps evaluation and the ability to gather data to effectively evaluate child outcomes. The report details the tremendous successes of the First Steps initiative to date and outlines important challenges still to be addressed.

We look forward to seeing the recommendations outlined in this evaluation implemented so as to improve the school readiness of the children of South Carolina.

Sincerely,
The External Evaluation Committee

Jill Kelso
Ed McMenamin
Dexter Cook

Table of Contents

Tables

Figures

Acknowledgements

We would like to acknowledge the contributions of the following individuals who were particularly helpful in the completion of this report:

Members of the External Evaluation Committee: Dr. Dexter Cook, Jill Kelso, and Ed McMenamin

In the Office of First Steps: Susan DeVenny, Dan Wuori, Samantha Ingram, and Russell Brown

South Carolina Office of Research and Statistics: Charles Bradberry, Mary Payson, and Holly Battenhouse

We'd also like to thank the following groups of people that worked with us as we gathered the data and analyzed all of the information included in this report:

Members of the First Steps Family: Lisa Van Riper and the Board of Trustees Evaluation Committee members, County Executive Directors, County Partnership Board Chairpersons, and the entire membership of the state-level Board of Trustees

South Carolina Budget and Control Board

South Carolina Department of Education

South Carolina Department of Health and Human Services

South Carolina Department of Social Services

South Carolina Department of Health and Environmental Control

Colleagues at the High/Scope Educational Research Foundation

The work described in this report was funded by South Carolina First Steps to School Readiness, Contract No. 08-S7669-A13776. The authors are solely responsible for any opinions, recommendations, omissions or errors contained herein.

Thank you,

Kimberly Browning
Zongping Xiang

Introduction

This report is an evaluation of the state of South Carolina's First Steps to School Readiness. First Steps is a comprehensive initiative designed to help prepare children for school by providing funding to support early childhood services through community/county collaborations that address the unmet needs of young children and their families. Funding for this initiative originates at the state level, where it is dispersed to the 46 counties that use it to support a range of services for children and their families.

The need for these types of services is evident. In 2007, South Carolina ranked 47th in personal income, with a median income of $31,013, leading only Arkansas, West Virginia and Mississippi (US Census Bureau, 2010). In 2008, it was ranked as the 10th poorest state in the country with 48% of young children in South Carolina living in low-income families - ten percent of these in extreme poverty. Seven out of ten children qualified for free/reduced lunch. Thirty six percent of young children had 1-2 identified risk factors, 13% had 3 or more. The most recent Kids Count Data Book (2010) ranked South Carolina 45th (out of 50 states) when analyzing the well-being of children who reside there. Of the ten indicators the report identifies, South Carolina is 47th on three of the ten indicators, percentage of low birth weight babies, infant mortality, and the percentage of children in single parent families. Additionally, the child death rate of children 1-14 has not improved over the last ten years with the state ranked 44th in 2010. It should be noted that these sobering statistics were calculated prior to the recent economic recession during which South Carolina has been particularly hard hit. It is safe to assume that the well-being of vulnerable children in South Carolina is at even greater risk. Since the beginning of the recession in 2007, South Carolina has been forced to cut its budget over $1.5 billion while unemployment has risen substantially. These are difficult times for vulnerable children and families.

Previous Evaluations

This is the third evaluation of the First Steps initiative. The first evaluation, conducted by Child Trends in 2003, was an implementation evaluation that asked the question "Is First Steps doing the right things in the right ways for the right people?" The evaluation took place when some counties' programs had been in existence less than a year, and many others were still in an implementation phase. As a result, the 2003 evaluation focused primarily on the implementation of the First Steps initiative rather than outcomes. The report makes clear that the researchers felt that evaluating outcomes at such an early stage of the development of the First Steps initiative could potentially underestimate the effects of the programs. They attempted to determine whether First Steps had identified research-based best practices, implemented them effectively, and begun to provide them to the appropriate populations (Child Trends, 2003a, p. 11).

The second evaluation released in 2006, conducted by the HighScope Educational Research Foundation (Browning, Daniel-Echols, Xiang, 2006), both revisited and moved beyond the first research questions and findings. It extended the evaluation to a focus on impact. It was an outcomes evaluation that asked not only is First Steps doing the right things in the right ways for the right people but also asks whether the programs supported by First Steps funding were getting the "right" results—that is, improving the readiness of children for school.

The 2006 evaluation focused on four specific areas of the First Steps experience: early education, child care (which included quality enhancement programs and child care expansion), parenting and family strengthening (family skills and literacy programs), and the "value-add" of First Steps. Each of these four foci addressed issues critical to the future by providing insight into the experience and value of the South Carolina First Steps to School Readiness initiative. The first three represented 80% of all First Steps dollars spent in FY 2003. First Steps investments have been concentrated in these areas since the initiative's inception. The fourth area of investigation, the added value of First Steps, focused on a basic policy question: Did the strategy of investing in early childhood care and education programs through First Steps allow for efficiency, effectiveness, or innovation that otherwise might not have happened?

The recommendations of the second evaluation were focused on three areas: program investment; data management; and organization, bureaucracy and collaboration.

Program Investments

Over the first six years, First Steps invested the majority of its resources into supporting and expanding 4K, improving access to and the quality of child care, and developing parenting and family literacy programs. This last category had been growing and was, at that time, First Steps largest investment.

It was recommended that First Steps should continue to invest its limited resources in providing quality services that have evidence of effectiveness to the neediest children. The strongest evidence of child outcomes in the evaluation came from the early education analyses. There was a positive, significant impact on child outcomes that could be attributed to 4K attendance. Further, the evidence showed that children benefited more from a full-day 4K experience than a half-day experience. The positive effects of full-day were magnified for minority children.

The report indicated that consideration needed to be given to what types of programs First Steps would continue to fund in the future. While many programs had great value to children and families, not all of them (particularly parenting and family strengthening) had a clear, direct, and measurable link to the school readiness outcomes measured in this evaluation. If the only concern of First Steps was measurable increases in school readiness, it was recommended that spending should focus less on parenting and family strengthening programs and more on providing quality preschool and child care experiences for children at risk for school failure.

On the other hand, if the goal of First Steps was to continue to provide comprehensive services and programs that supported families in an effort to increase school readiness, then the report discussed that the focus of evaluation needed to be measured by the impact that individual programs had directly on parents and families. Parents' knowledge or skills needed to be measured directly to document gains for the adult participants. Additionally, the focus of child outcomes needed to be on child well-being and child/parent relationships that are more directly linked to the content of the parenting and family literacy programs (e.g. decreased incidents of abuse or neglect, increased levels of parent-child communication/positive interactions, more time spent reading to one's children). The

measurement of parent and family outcomes needed to be collected pre- and post- implementation, using a common set of tools across programs.

It was also recommended that First Steps consider limiting the scope and number of parenting and family literacy programs in favor of supporting a smaller number of programs. The evaluators believed that investments should be in programs that have a documented history of providing specific gains for parents and families. With limited funds available, First Steps could not continue to offer such a wide berth of potential programs. It was recommended that programs with very low numbers of participants or programs that did not have easily measurable outcomes that could be tied to family improvement should be eliminated from, or have low priority in, the First Steps investment strategy.

Data Management

As was noted throughout the 2006 full report, there were answers that could not be given and data analytic techniques that could not be pursued due to a lack of available data. In 2003, Child Trends recommended that First Steps prepare for the 2006 evaluation by putting in place systems to track clients and services, that there be a standardization of data collection tools, and that serious consideration be given to whether the Program Effectiveness Reports (PERs) should continue to be collected. Over the course of the evaluation, it became clear that there was still need for significant improvement. In 2006 First Steps had revised the PERs to address the variable quality and comprehensiveness of information provided by the counties. However, the report recommended that further consideration be given to the development of a better system.

Missing data was an important issue in the 2006 report. Systems which were in place were inadequate to collect, manage, and track First Steps participants longitudinally. There was confusion regarding the number of clients that counties were required to provide complete records on. This lack of information combined with methods used by the ORS to create unique identification numbers resulted in uncertainty regarding the exact number of First Steps clients. Large numbers of adult clients were not able to be identified or matched with any child clients in the data. Approximately 7,000 of the adult clients were not included in analyses. There were serious concerns regarding the validity of the data that was collected. It was recommended that counties be required to complete all information on their clients.

Despite being highlighted in the 2003 evaluation, there was still a need for a system that standardized and validated county and vendor participation data. The need for a standardized set of instrumentation, which could be used to compile program and vendor participation information, was reiterated. Additionally, HighScope recommended a standardization of outcome measures for all participating programs and vendors that would allow for easier evaluation in 2009. The inconsistent manner in which participants and services had been tracked had to be improved.

Bureaucracy and Collaboration

The lack of available data was not entirely due to First Steps' inconsistent collection of program and client information. The evaluation was challenged by the Department of Education's reluctance to provide information. In some instances there was an outright refusal to participate. In others there was a slow response time to requests that made completing the work difficult and in some instances impossible. In other cases, department personnel did not actively thwart the work, but neither did they support it when they could have.

While First Steps seemed to shine in breaking down borders at the local level, there was work to be done at the state level. It was obvious that there were political rivalries between First Steps and the Department of Education. Assuming the best intentions of all parties, the battle over turf and access to information was based in each agency's commitment to providing high-quality services within the context of a limited amount of resources. It was recommended that as First Steps either maintain or increase its investments in 4K, it should also work with the Department of Education to build on the strengths of each agency.

Lastly the report suggested that the state Office of First Steps needed to reconsider its relationships with county offices. Executive directors offered clear feedback that they were struggling with what they perceive to be a state bureaucracy not in sync with their local needs. It was recommended that the state office provide clearer communication of expectations and guidance on how to meet state-mandated requirements. This did not mean they should create more layers of reporting. Instead the report encouraged the simplification of regulations when possible, doing away with rules that were no longer necessary and the installation of new expectations of accountability related to data collection.

First Steps Response to the 2006 Evaluation

The Office of First Steps and its Board of Trustees adopted significant changes as a result of the 2006 evaluation. While many changes were identified and implemented prior to the release of the report (Office of First Steps, 2005a; Office of First Steps, 2005b), the specific response to the report was swift and aggressive.

After thorough review, the First Steps Board of Trustees passed sweeping programmatic and evaluation requirements that became effective in August 2007. Changes included designing and launching a new client data site with improved data quality protections. New data policies linked to payment for both First Steps partners and vendors were implemented. Collaborations with partnering state agencies resulted in improved data collections, the minimization of duplicative data entry and the elimination of unnecessary data outputs.

Common assessment measures for child care quality, parenting, and family literacy were incorporated as contractual requirements for all County Partnerships and their own programmatic vendors during FY08. County partnerships evaluation plans must be submitted and are now subjected to approval and/or technical assistance. Program requirements were updated.

Relationships with partner agencies were nurtured and it is worth noting that in particular, the relationship between First Steps and the Department of Education has greatly improved with the two agencies working in close collaboration on several large projects.

Additionally, the board working with Dr. Baron Holmes (2006) identified those characteristics most commonly associated with early school failure in South Carolina and required all First Steps programs to target children possessing these risk factors. Table 1 highlights the identified risks and the percentage of children possessing the factor.

Table 1. Risk Factors in South Carolina

Risk Characteristic		% Retained by Grade 3	% of Population (0-6 yrs.)
Abuse, Neglect and Foster Care		53	3.0
Birth Weight	< 3.3 lbs.	52	2.1
	3.4-4.4 lbs	43	2.8
	4.5-5.5 lbs	36	5.5
Low Mothers Education		48	24.1
Teen Mother	< 18 years	43	4.6
	18-20 years	37	8.8
TANF		45	8.4
Food Stamps		42	20.0

Source: Dr. Baron Holmes, South Carolina Budget and Control

Table 2 highlights specific issues raised and the response of First Steps to address issues. Given the short time frame between evaluation and the implementation of the new requirements, the scope and magnitude of the changes were significant. These changes allowed for a more robust and comprehensive evaluation to occur in 2009.

Table 2. Summary of Corrective Actions Taken in Response to the 2006 Evaluation

Issue	Action Taken
Integrity of Existing Data	
Due to incomplete data, many existing adult client records could not be matched to a corresponding child.	First Steps and the SC Office of Research and Statistics staff collaborated to design and launch a new client data site in which child records cannot be entered without a corresponding adult record - thus eliminating a major threat to ongoing data quality.
First Steps clients were inconsistently flagged in the State Department of Education student database.	Increased collaboration with State Department of Education resulted in new policies related to First Steps participant data.
There was missing or incomplete vendor data at the county level.	In January 2007 First Steps implemented new data policies linking ongoing payment to the timely submission of complete client and outcomes data.
	Delinquent vendor funding is now frozen fourteen days after each quarterly deadline.
Absence of Necessary Client Data	
Client level data was not collected in certain strategy areas, most notably those in child care (e.g. outputs only).	First Steps, SC Office of Research and Statistics, and Department of Social Services staff collaborated to design a new child care client data portion of the First Steps Data System for launch in July 2007.
	System designed to share data with new Department of Social Services licensing system to minimize duplicative data entry.
Mismatches Between Outputs and Client Data	
Data system revealed mismatches between County Partnerships reported outputs data and actual County Partnership client records.	First Steps data policies further were expanded to improve disparities.
	First Steps and Office of Research and Statistics staff partnered in system redesign that will gradually eliminate original First Steps outputs site.
	In the future, numbers will be generated from actual client records.
	Certain child care and parenting outputs were eliminated.

Lack of State-Wide Programmatic Requirement and Evaluation Measures	
An absence of explicit statewide program standards and common short-term outcome measures threatened: The quality of First Step programming The state board's ability to ensure programmatic accountability, The initiative's ability to measure its short-term outcomes.	After thorough review, the First Steps Board of Trustees passed sweeping programmatic and evaluation requirements in May of 2007. Requirements were incorporated as *contractual requirements* for all County Partnerships and their own programmatic Vendors during FY08. New requirements became effective August 2007. Required child care quality enhancement measures. Required parenting measures for PAT, PCH, and Triple-P.
Small and/or Non-Standard Strategies	
Inability to measure outcomes for small or non-standard strategies.	Strategy evaluation plans are required to be submitted to First Steps Board of Trustees Evaluation Committee for approval and/or technical assistance to be renewed.
Need to Focus on Program Quality	
First Steps would benefit from increasing its focus on program quality.	Development and passage of FY08 Board of Trustees program requirements. Addition of state-level child care and parenting specialists to provide TA to Partnerships. SC Early Childhood Quality Standards Task Force. Random programmatic monitoring began in FY08.
Need to Improve County Partnership Communication	
Office of First Step needed to increase and improve its communication with County Partnerships	Instituted regular conference calls and email updates. Increased communication to local Board Chairs. Established Leadership Council comprised of county partnership directors

Overview of the 2009 Evaluation

During the 2006 evaluation, four broad thematic questions shaped the evaluation questions addressed in the report. Those questions included:

1. Who was being served? (Was First Steps serving the right people?)
2. What was the range of the services being provided? (Was First Steps providing the right services?)
3. What was the quality of the services being provided? (Was First Steps services implemented in the right ways?)
4. And, did the services impact the outcomes of participants? (Were First Steps services getting the right results?)

Because many of the 2006 evaluation questions were unable to be answered this evaluation revisits these basic questions again.

Who Is Being Served?

(Is First Steps serving the right people?) The First Steps initiative's mandate is to provide services to insure that all children are ready for first grade. Within that mission is an emphasis on the state's most disadvantaged children and families since they are more likely to not be ready for school. A basic concern is whether or not dollars are being spent on programs that reach the neediest South Carolinians. "Who is being served?" is a fundamental question in this evaluation.

What Is the Range of the Services Being Provided?

(Is First Steps providing the right services?) Counties are able to use their First Steps funds to support a wide range of programming. Funds are meant to expand, extend, improve, or increase access to services. Individual counties conduct community needs assessments that guide their investment strategies. The question "What services are being provided?" can also be posited as "Are First Steps funds being spent on well-documented, research-based programs that target and provide effective services to children and families at risk?"

What Is the Quality of the Services Being Provided?

(Are First Steps services implemented in the right ways?) A consideration of the impact of programs that benefit from First Steps funds on child outcomes cannot be separated from an

investigation of program quality. Dollars may be reaching target constituents to little or no effect if the quality of programming is inadequate.

Do the Services Impact the Outcomes of Participants?

(Are First Steps services getting the right results?) The most crucial concern for many supporters and skeptics alike of the First Steps initiative is its impact on outcomes. Specifically, everyone is interested in child outcomes that relate to school readiness. The question of impact, however, is not just limited to the assessment of child outcomes and how they are measured. Fundamental questions regarding the types of programs, the implementation of those programs, staffing issues, and how all of these factors influence outcomes must be considered as well.

This 2009 evaluation focuses on the following specific areas of the First Steps experience: four-year-old kindergarten, parenting and family literacy programs, child care quality enhancement and scholarships, and the school transition program Countdown to Kindergarten. It is important to remember that the four umbrella themes are interdependent and that evaluation must treat them as such. In keeping with the umbrella themes, separate evaluation questions were devised for programs and participants. In each area of evaluation two sets of questions were devised, research questions related to the funded programs themselves and research questions related to the program participants.

Impact of the Financial Crisis on First Steps and the Evaluation

In the original Request for Proposal put out by First Steps for this evaluation, the request required that the budget not exceed $650,000 over a five (5) year project period. The evaluation initially proposed and accepted by the First Steps Board of Trustees met this criterion. Included in the plan were new data collections to address some evaluation questions.

Like most states, the State of South Carolina has been severely impacted by the recent financial crisis in this country. Overall the state has been forced to reduce spending during fiscal years 2008-09 and 2009-10. Between FY 2007 and 2010, First Steps state budget allocations have been reduced by 50%. Table 3 highlights the reductions in the First Steps budget in state and EIA appropriations during FYs 2009 and 2010.

Table 3: State and EIA Appropriation Budget Reductions

State Appropriations			
Fiscal Year	July 1st	Current	% Cut
2009	$ 18,195,828	$14,960,421	17.8%
2010	$ 14,960,421	$13,638,604	8.8%
E.I.A. Appropriations			
Fiscal Year	July 1st	Current	% Cut
2009	$ 1,883,540	$ 1,569,974	16.6%
2010	$ 1,490,847	$ 1,488,981	0.1%

In response to these reductions, HighScope was asked to revise the budget and reduce it from its original $616,431 over five years to $300,000 over three years. HighScope complied and the percent reductions were as follows: Year 1 – 39%; Year 2 – 31%; Year 3 – 47%; Year 4 – 100%; and Year 5 – 100%. In order to achieve these cost reductions staff time on the project, office supply expenses and travel were decreased and almost all evaluation was limited to the analysis of data available to HighScope through First Steps and the Office of Research and Statistics (ORS). In some instances this has meant that evaluations questions were dropped or modified.

Data Sources and Evaluation Questions

The Office of Research and Statistics (ORS) was an important partner in the completion of the 2009 First Steps Evaluation. With the exception of the Countdown to Kindergarten data, ORS, working with HighScope requests assisted in the creation of a database using data provided by First Steps and its state agency partners. Agencies that shared their data for use in this evaluation included the Departments of Education, Social Services, Health and Environmental Control, Health and Human Services and the Budget and Control Board, as well as the Office of First Steps. The data provided by these partnering agencies created a data set that allowed many of the evaluation questions to be answered with data that already was in existence within the ORS system.

Home Visitation Strategies Evaluation Questions

Parenting Strategies

The 2006 evaluation highlighted that First Steps had focused a significant portion of its efforts on improving parent home visitation strategies in South Carolina. The goals of First Steps to School Readiness in the area of parenting are to:

- Increase parent education levels,
- Increase the effectiveness of parenting related to child nurturance, learning, and interaction, language, health and safety, and
- Increase successful parenting programs targeting, service integration, and results documentation.

At the time of the 2006 evaluation, a number of data problems raised concerns about the analysis.

1. Many of the children whose parents had participated in the parenting and family strengthening initiatives were too young to be included in cohort data;
2. A significant number of adult clients could not be matched with child outcome data; and
3. There was the lack of a statewide data collection system for parenting participants which included consistent pre/post measures on parents who participated.

An important caveat/limitation was described in the 2006 evaluation and bears repeating. A serious problem exists when evaluating parent programs and their impact on child outcomes because the link is indirect. That is a program can impact parents beliefs, knowledge, and practices in ways that are likely to lead to positive child outcomes but many factors can affect the size, duration, and nature of the outcomes.

Keeping these cautions in mind, the home visitation evaluation questions in this 2009 evaluation are:

1. What are the descriptive characteristics of participants in parenting programs?
2. Do parenting programs funded by First Steps increase parental effectiveness related to child nurturance, learning and interaction, language, health and safety?
3. What are the short- and long-term outcomes for children whose parents participate in First Steps parenting programs combined with other First Steps strategies?

Recent changes to client data system and new statewide requirements for measuring parental outcomes allowed the measurement of change in parental effectiveness that was unable to be accomplished in 2006. A longitudinal analysis of children whose parents participated during the early years of First Steps remains impossible, since early participants cannot be identified. Additionally, as a result of changes to program standards and implementation due to the 2006 evaluation, child outcomes are still unable to be obtained. Parents receiving the current intensive home visitation strategies have children who are too young to be identified in the elementary educational system therefore child outcomes for the current participants are not yet available.

Family Literacy Strategies

Since inception, First Steps has funded a variety of strategies to strengthen literacy within families. These strategies have been wide and varied. Some strategies are interventions aimed at equipping parents with the skills to be more effective at encouraging the language and literacy of their children. These range from family literacy model programs to English Language Learner initiatives. Other strategies are more indirect and are meant to enhance parent-child literacy through the direct provision of books (Imagination Library) or access to libraries through bookmobiles, etc. The range of these initiatives require quite varied evaluation approaches and in some cases direct impact on child

outcomes may be impossible to assess. Nevertheless, these indirect programs may be valuable as resources to parents attempting to strengthen their child's readiness for school.

2009 literacy evaluation questions are:

1. What are the descriptive characteristics of participants in literacy programs First Steps supports?
2. Do family literacy programs funded by First Steps impact parental literacy skills?
3. What are the short- and long-term outcomes for children who participate in First Steps funded family literacy programs?
4. What are the short and long-term outcomes for children who participate in First Steps funded family literacy programs combined with other First Steps strategies?

School Transitioning: Countdown to Kindergarten

School transition is one of the newer readiness strategies implemented by First Steps. Because it was introduced in 2004, the school transition program, more specifically Countdown to Kindergarten (CTK), was not included in either the 2003 or 2006 evaluations. The goals of the First Steps school transition programs are:

- Emphasize to parents the value of home activities and hands-on learning specifically as it relates to literacy skills prior to kindergarten,
- Help children gain confidence as they transition into kindergarten,
- Assist parents in understanding the "how to" as well as the importance of parental involvement for their child upon school entry, and
- Increase public awareness of the importance of children being ready for school.

Evaluation questions include:

1. What impact does the First Steps school transition program have on teacher beliefs and attitudes?
2. How do teachers rate the transition to kindergarten of First Steps school transition program children?

Participant questions for the First Steps school transition program include:

1. What are the descriptive characteristics of children and families who participate in CTK?
2. What is the impact of participation in CTK on parents (i.e., increase use of hands-on learning, understanding of importance of parental involvement, etc.)?

The evaluation questions related to CTK were the most impacted by budget cuts. As a relatively new strategy specific data related to participants' transitions has not yet been able to be collected. Therefore many questions related to CTK were forced to be altered and/or delayed until future evaluation. Dropped questions include:

1. What is the conceptual model used in First Steps school transition program?
2. What is the content and quality of First Steps school transition program?
3. What are the descriptive characteristics of teachers who participate in the First Steps school transition programs?
4. Does the First Steps school transition program increase awareness of the community regarding the importance of school readiness?
5. Do children who participate in the First Steps school transition program transition into kindergarten differently than non-participants?
6. Do parents of CTK children participate in greater amounts when compared to non-CTK parents?

Child Care

Quality Enhancement Evaluation Questions

Because of the strong relationship between child care quality and children's development and readiness for school, First Steps has focused a significant portion of its efforts on improving child care experiences for children in South Carolina. The goals of First Steps to School Readiness in the area of child care are to:

- Increase the availability of quality childcare choices for parents as measured by increasing numbers of child care providers operating at higher levels of quality.
- Increase the school readiness focus in child care settings,

- Increase the leverage of federal and private resources to serve the state's most at-risk children,
- Increase the number of child care workers achieving progress toward early education certification and continued professional development,
- Improve the quality of physical and learning environment in child care settings of all type, and
- Increase the number of child care vouchers available to SC families for quality child care.

The three primary areas in child care that First Steps focuses on are child care quality enhancement, child care worker professional development, and expanded access to quality child care. Strategies related to child care quality adopted by First Steps include the following:

- Quality enhancement: First Steps provides funds to help child care providers improve their quality by upgrading their child care licensing by offering technical assistance and mentoring, and
- Staff training and development: First Steps provides and funds staff training and development to improve quality in child care settings.

Evaluation questions for child care initiatives include:

1. What types of child care programs receive First Steps funding?
2. What types of technical assistance are available to child care centers as a result of First Step funding?
3. What types or forms of teacher training (enhancements) are provided to programs/staffs?
4. What types or forms of technical assistance/quality enhancement produce greatest results?
5. Does the technical assistant/quality enhancement provided have different results in different settings (i.e., center-based versus family or group homes)?
6. Is there evidence of program quality improvement as a result of the training provided by First Steps funding?

The pivotal question in child care focuses on the type of preschool experiences that children receive in the programs they attend. The logic model, while indirect is research-based, that is higher

quality preschool experiences lead to better child outcomes. The focus here is on the impact of investments in teachers and classrooms.

Scholarship Evaluation Questions

Another primary strategy in the area of child care is child care scholarships. The goal of this strategy is to increase the number of child care subsidies available to eligible families.

The following evaluation questions are related to this strategy:

1. What are the descriptive characteristics of families receiving First Steps and ABC child care funding (First Steps scholarships, ABC vouchers)?
2. How long does the average recipient receive funding?
3. What are the short- and long-term outcomes for children who receive First Steps child care scholarships?
4. What are the short- and long-term outcomes for children who receive First Steps child care scholarships combined with other First Steps strategies?

Early Education Evaluation Questions

Increased access to high-quality early education is at the heart of the First Steps initiative. In Section 59-152-30, the First Steps to School Readiness Act stated as one of its goals to "promote high quality preschool programs that provide a healthy environment that will promote normal growth and development" with particular emphasis on "school readiness" and "quality cognitive learning."

Since the 2006 evaluation and as a response to the decision in Abbeville County School District, et al., v State of South Carolina, et al.; the South Carolina General Assembly included Proviso 1.75 in the 2006-2007 general appropriations which created the South Carolina Child Development Education Pilot Program (CDEPP) which among its provisions included the expansion of 4K in plaintiff districts in public and private settings. The Office of First Steps was given specific responsibility for implementing the program in private settings. As a result, evaluation questions that address private settings will be included with those that will focus on other 4K settings unique to First Steps such as Child Development Education in Private Settings (CDEPP) and the First Steps Centers of Excellence (COE).

Building on the 2006 evaluation, 2009 evaluation questions related to the First Steps early education are as follows:

1. What are the descriptive characteristics of children who participate in First Steps 4K-funded classrooms?
2. What are the short- and long-term outcomes for children who participate in First Steps 4K-funded programs?
3. Is there a difference in outcomes for First Steps children who attend full or half-day 4K versus non-4K attendance at all?
4. What are the short- and long-term outcomes for 4K children who participate in First Steps 4K programs combined with other First Steps strategies?

Organization of the 2009 Report

Due to the increasingly complex nature of First Steps work, this report is organized to reflect the multiplicity of interventions many First Step participants experience. Demographics for all individual strategies, combined strategies, and by program type in 4K are presented together. For each strategy area of focus in this evaluation the corresponding chapter highlights specific results related to the intent of the intervention. For example, in the chapter on home visitation, only results specific to home visitation (e.g., gains in parenting or family literacy skills) are addressed. Likewise, in the chapter on child care, only the results of quality enhancement are presented. Child outcomes are evaluated in three manners and presented in three chapters: the impact of 4K as a single strategy; the impact of CDEPPP 4K; and the impact of multiple interventions, e.g., parenting plus 4K. Presenting information in this form allows for the short-term specific evaluation of individual strategies as well as the long-term impact of strategies, both singular and multiple, on child outcomes.

The data sets used in these analyses consist of all children who attended kindergarten during the identified fiscal year. For ease of understanding and clarity, FY kindergarten cohorts are the point of reference in all descriptions and analyses. It should be noted, however, that First Steps participation had to have occurred at some point prior to kindergarten entry. During the first two years of First Steps program implementation 2000–2002 First Steps children were not identified in DOE or First Steps databases, or data that was collected was incomplete. Therefore, analysis specific to First Steps could not be conducted for these years. During the 2003–04 and 2004-05 FYs, using a combination of First Steps and the DOE database, First Steps children were identified and, where sufficient sample sizes existed, First Steps-specific analyses were completed for these children.

First Steps' Early Childhood Care and Education Investments

Table 1 details total spending and spending by funding source for fiscal years FYs 2006, 2007, 2008, and 2009. Funding sources in the table include the following.

- State Allocation. Money appropriated by the state of South Carolina's General Assembly to the Office of First Steps that is then dispersed to county-level First Steps offices.
- State Private. Gifts from private donors to the Office of First Steps that are then dispersed to county First Steps offices.
- Cash Match (local private). Gifts from private donors given directly to county-level First Steps offices.
- In-Kind (not cash). Services or materials donated directly to county-level First Steps offices.
- Federal. Federal grants that go first to the Office of First Steps and are then dispersed to county-level First Steps offices or federal grants that are awarded directly to county-level offices.
- Lottery. Lottery funds appropriated by the state of South Carolina's General Assembly to the Office of First Steps that are then dispersed to county-level First Steps offices.
- Lottery Local Match. Local, private cash donations used to match lottery funds.
- Lottery Local In-Kind (not cash) Match. Local in-kind donations of services or materials used to match lottery funds.
- Lottery Federal Match. Federal cash used to match lottery funds.
- EIA Allocation. Money appropriated by the state of South Carolina's General Assembly to the Office of First Steps.
- CDEEP 4K Appropriation. Money appropriated by the state of South Carolina's General Assembly to the Office of First Steps
- Centers of Excellence. Money appropriated by the state of South Carolina's General Assembly to the Office of First Steps
- NFP Special Appropriation. Money appropriated by the state of South Carolina's General Assembly to the Office of First Steps

Across the nation, the worst recession since the 1930s has caused the steepest decline in state tax receipts on record. As a result, even after making very deep cuts, almost all states have continued to face large budget gaps. South Carolina, one of the hardest hit states, has been forced to make cuts in public health services, services for the elderly and disabled, Medicaid, CHIP, early-education as well as K-12 and higher-education, and in its state workforce. In 2009, First Steps state appropriations were reduced by almost 18% and its EIA appropriations were cut over 16%. Additional cuts in state appropriations have been implemented during the current budget year.

During FYs 2006-09, the impact of the recession can be clearly seen in the First Steps budgets. Beginning with a budget high of almost $30 million in FY06 it had decreased in FY 2009 to just over $27 million. As can be seen in Table 4, over the four years, state allocations were the highest percentage of spending in FY 2007 (57%), dropped slightly in FY 2008 (53%), and saw a significant decline in FY 2009 to 38%. In-kind donations decreased from 16% of the budget in FY 2006 to 11% in FY 2009. EIA allocations dipped from a high of 7% in FY 2007 to 5% in FY 2009. Nevertheless, First Steps has been able to increase allocations from the Federal government from 7% in FY 2006 to 19% in FY 2009. Local private donations increased from 1% in FY 2006 to 8% in FY 2009 (from $373K to over $2 million). And, while Lottery allocations dropped off, CDEEP and COE appropriations were introduced and accounted for 16% of all expense spending in FY 2009.

Table 4. Total Expenses by Funding Source and Fiscal Year

	Total Spending by Fiscal Year									
Funding Source	FY 2006	%	FY 2007	%	FY 2008	%	FY 2009	%	Total	%
State Allocation	$15,236,044	51	$15,297,643	57	$14,944,314	53	$10,208,941	38	$55,686,946	51
Carry Forward					$100,919	0	$710,309	3	$811,228	1
State Private	$355,197	1	$178,754	1	$221,603	1	$244,902	1	$1,000,458	1
Local Private	$373,500	1	$1,198,024	4	$1,320,588	5	$2,089,630	8	$4,981,743	5
In-Kind Donations	$4,655,340	16	$4,345,804	16	$4,080,988	14	$3,038,787	11	$16,120,921	15
Federal Grants	$2,162,527	7	$2,245,571	8	$2,497,145	9	$5,079,200	19	$11,984,445	11
Lottery Appropriations	$1,234,298	4	$263,777	1	$56,238	0	$51,917	0	$1,606,231	1
Local Private- Lottery Match	$535,383	2	$36,428	0	$22,023	0			$593,835	1
In-Kind – Lottery Match	$867,142	3	$83,670	0					$950,812	1
Federal Lottery Match	$79,267	0	$38,780	0					$118,048	0
E.I.A. Allocation	$1,500,076	5	$1,816,194	7	$1,530,065	5	$1,449,249	5	$6,295,586	6
Carry Forward							$152,976	1	$152,976	0
CDEEP 4K Appropriation			$1,266,947	5	$1,929,770	7	$2,066,618	8	$5,263,335	5
COE Special Appropriation			$25,153	0	$1,693,443	6	$2,102,018	8	$3,820,616	3
NFP Special Appropriation					$2,748	0			$2,748	0
Total FY Expenses	**$29,998,780**	**27**	**$26,796,751**	**22**	**$28,399,885**	**26**	**$27,194,552**	**25**	**$ 109,389,937**	**100**

Source: *Fund Income and Expense Summary Report (All Funding Sources) for transactions recorded between July 1, 2005, and June 30, 2006; July 1, 2006, and June 30, 2007; July 1, 2007, and June 30, 2008; and July 1, 2008, and June 30, 2009.*

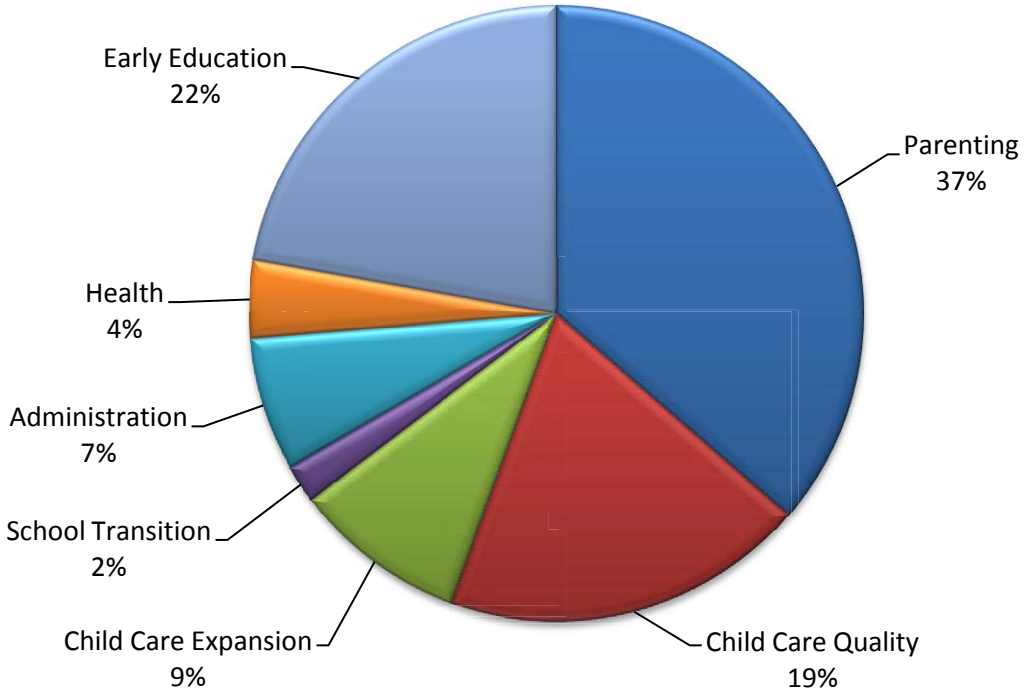
First Steps has consistently invested in several types of programs. Specifically, during the last four years of operation (when program functions costs are combined with specific programs) First Steps invested over $23 million dollars enhancing early education, over $39 million in parenting home visitation strategies, over $30 million increasing access to and enhancing the quality of child care, and over $4 million providing health care and other services to children and families. Table 5 provides full descriptions of the amount of spending on specific program types by fiscal year.

Table 5. Total Expenses Strategies by Fiscal Year

	FY 2006	FY 2007	FY 2008	FY 2009	Total
Administration	$1,796,890	$1,942,530	$2,153,765	$1,921,789	$7,814,974
Program Functions	$2,471,863	$2,590,679	$2,878,416	$2,697,282	$10,638,240
Parenting/Home Visitation	$9,337,270	$9,277,440	$9,490,766	$7,709,737	$35,815,213
Early Education	$6,473,970	$4,990,238	$4,958,129	$5,115,636	$21,537,973
School Transition	$499,087	$613,475	$424,513	$446,331	$1,983,406
Transportation	$30,892				$30,892
Child Care Quality	$4,285,595	$4,705,498	$5,345,571	$4,807,176	$19,143,840
Child Care Expansion	$1,566,700	$2,044,372	$2,412,360	$2,763,614	$8,787,046
Psaras Rural Initiative		$40,052	$62,418	$41,452	$143,922
Health and Human Service	$536,513	$592,467	$673,947	$169,1536	$3,494,463
Total	$26,998,780	$26,796,751	$28,399,885	$27,194,553	$109,389,969

Figure 1 aggregates all of the data in Table 5. It depicts the types and total size of First Steps investments from July 1, 2006, through June 30, 2009. In the figure, all programs which make up less than 1% of all spending are not included.

Figure 1. Percentages of Combined Total Expenses by Strategy for Fiscal Years 2006-2009



First Steps To School Readiness Participants

The legislation that created First Steps stipulated that accountability be a cornerstone of First Steps to School Readiness. The legislation requires on-going data collection and performance audits to ensure that the initiatives goals and requirements are being met. The "purpose of the evaluation is to assess progress toward achieving the First Steps goals and to determine the impact of the initiative on children and families at the state and local levels" (Section 59-152-160[C]). An important component of any evaluation is to know who participates in the initiative. As a result every strategy in this evaluation has at least one evaluation question that addresses the descriptive characteristics of First Steps programs participants. Evaluation questions related to participants are as follows:

- Parenting: What are the descriptive characteristics of participants in parenting programs?
- Family Literacy: What are the descriptive characteristics of participants in literacy programs First Steps supports?
- Child Care: What are the descriptive characteristics of families receiving First Steps and ABC child care funding (First Steps scholarships, ABC vouchers)?
- Four Year-Old Kindergarten: What are the descriptive characteristics of children who participate in First Steps and non-First Steps 4K-funded classrooms?

In the 2006 evaluation, data from the first four years of First Steps was used for evaluation. These included FYs 2001-02, 2002-03, 2003-04 and 2004-05. As reported in great detail in the 2006 evaluation there were problems with the data management and the quality of data that had been collected to that point. Data from FYs 2003-04 and 2004-05 were the first years that First Steps participants were identified in either Department of Education (DOE) or First Steps databases, previous years participants (2001-2003) were either not identified or data that was collected was incomplete. This was a serious issue that resulted in answers that could not be given and data analytic techniques that could not be pursued due to a lack of available data. Concerns about the quality of the data collected during the FYs 2003-04 and 2004-05 still remain and caution needs to be maintained regarding results derived from them as the accuracy of these data sets regarding First Step participant identification remain in question. Nevertheless, the soundness of the data sets increased by fiscal

year, with the last two fiscal years being the most complete and accurate. Since the earlier data sets allow for longitudinal evaluation on child outcomes, they remain part of the work.

The data sets used in these analyses consist of all children who attended kindergarten during the identified FY. For ease of understanding and clarity, FY kindergarten cohorts are the point of reference in all descriptions and analyses. It should be noted, however, that First Steps participation had to have occurred at some point prior to kindergarten entry.

First Steps Participants Demographics

Five fiscal years of data are reported on in this evaluation (2003-08). For all FYs under consideration, Appendix A provides descriptive statistics for First Steps participants by FY and the type(s) of strategies participated in. Characteristics described (and controlled for in all outcome analyses) included the percentages of children who were non-White, had received food stamps, Medicaid, or Temporary Assistant to Needy Families (TANF), had been placed in foster care, were eligible for free or reduced lunch, had received special needs placement in kindergarten for mental, emotional, physical, or autistic disabilities, and who were low-birth weight (less than 2500 grams). The table also indicates the mean level of the mother's education. For each strategy the descriptives are non-exclusive. If a First Steps client participated in more than one strategy they are included in the descriptive of both strategies. Strategies are stratified into 9 groupings:

- Full-day 4 year-old kindergarten;
- ½ day 4 year-old kindergarten;
- Parents as Teachers/Parent Child Home (PAT/PCH);
- Other parenting initiatives;
- Literacy (4 Component Family Literacy);
- Other literacy;
- Child care;
- Health;
- Other strategies.

Participation rates by gender indicate that across FY's the percentage of males versus females averages around 50%. Across all FYs the First Step participants are predominantly non-white with high

rates of participation in Medicaid. A small percentage received TANF but Free/Reduced Lunch eligibility has shown consistent gains in the number of participants over the years, from just over 71% in FY 2003-04 to over 84% in FY 2007-08. There are consistent percentages of participants born at a low-birth weight (10.4% to 12.4%) and only a few foster care participants over the years. Eligibility for free/reduced lunch increased between FY 2003-04 and 2007-08 but average levels of mother's education stayed consistent less than a high school diploma (an average mean of less than 12 years).

Demographics of Participants in Combined First Steps Strategies

Analysis indicated that between FYs 2003-04 and 2007-08 the number of First Steps participants participating in more than one strategy increased significantly. It is important to note, that all First Steps strategy participation had to occur at some point prior to kindergarten. During 2003-04, less than 10% of participants had participated in more than one strategy prior to kindergarten. By FY 2007-08 more than half of the participants who were entering kindergarten had engaged in two or more First Steps strategies (Table 6).

Table 6. Number and Percentage of Strategies Participated In Prior to Kindergarten Entry

Number of Strategies	Fiscal Year of Kindergarten									
	2003-04		2004-05		2005-06		2006-07		2007-08	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
1	2,618	91.1	969	57.9	1,079	48.5	1,420	47.9	1,691	49.8
2	252	8.8	642	38.3	1,041	46.8	1,377	46.5	1,528	45.0
3	3	.1	63	3.8	100	4.5	156	5.3	165	4.9
4	—	—	1	.1	4	.2	9	.3	11	.3
5					1	<0.0				
Total	2,873	100	1,675	100	2,225	100	2,962	100	3,395	100

Appendix B provides descriptive characteristics for First Steps participants by FY and major First Steps strategies and combined strategies. Each strategy descriptive is exclusive. If a First Steps client participated in more than one strategy they are included in the descriptive of the combined strategies participated in (e.g., First Steps 4K and PAT). Strategies are stratified into the following categories:

- Full-day 4K only
- ½ -day 4k only
- Full-day 4K + PAT/PCH
- ½ -Day 4k + PAT/PCH

- Full-day 4K + Child Care
- ½ -Day 4k + Child Care
- PAT/PCH Only
- Child Care Only
- Full-day 4K + Family Literacy
- Literacy Only
- Child Development Education in Private Settings (CDEPPP)

First Steps participants in combined strategies were generally poorer and more at risk than the single strategy participants. Full- and ½-day 4K plus PAT had greater percentages of non-whites compared to the 4K only participants. Additionally they had higher rates of Medicaid, TANF and food stamp receipt. Their free lunch index ratings were higher and the level of mother's education was lower than their counterparts.

While the overall number of 4K participants (both full- and ½-day) who also participated in child care strategies was low (and data was only available for FYs 2006-07 and 2007-08) participants had higher Medicaid receipt as well as higher free lunch rankings compared to 4K only participants. Rates of food stamp receipt were higher for ½-day 4K plus child care compared to ½-day 4K alone. Additionally, full-day 4K had higher rates of low-birth babies compared to full-day 4K alone.

Full-day 4K plus literacy participants were more at risk than full-day 4K and literacy only. On every risk category except mothers education level, including Medicaid, TANF, food stamp receipt, free lunch index ratings, and low-birth weight full-day 4K plus literacy participant percentages were higher. This was also true for CDEPP participants compared to full-day 4K as well.

Demographics of 4-Year Old Kindergarten Participants by Program Type

During the 2006 analysis it was within FYs 2003-04 and 2004-05 that it was the possible to identifying children who had benefited from First Steps funding. For this evaluation three additional FYs allow for the further identification of children who benefited from some form of First Steps intervention. Appendix C compares First Steps funded children to all other non-First Steps children in

the same kindergarten cohorts. Categories of program types are: No First Steps and Non-4K; Non-First Steps 4K (public school 4K); First Steps 4K; and First Steps without 4K.

Non-First Steps 4K tends to have the highest percentage of males while First Steps 4K and First Steps non-4K have on average the highest percentages of non-whites. First Steps 4K and non-4K are serving a more disadvantaged population as evidenced by First Steps participants having the highest percentages of low-birth weight babies, Medicaid, TANF, and Food Stamps participants as well as higher free lunch index rankings compared to the non-First Steps population. First Steps mothers also have lower rates of mother's education. While in the early FYs, First Steps non-4K were the most disadvantaged participants, recent trends indicate that First Steps 4K participants have become more at risk the two groups however have become quite similar in risk demographics. For example, the percentage of First Steps 4K participants receiving Medicaid in FY 2003-04 was 66% and First Steps without 4K was 86%. In FY 2007-08 First Steps 4K had a 74% participation rate and non-4K was 75%. This same pattern also exists for TANF, Food Stamps receipt, low birth weight, free lunch index and mothers education levels.

Home Visitation Strategies: Parenting and Family Literacy

Parenting home visitation strategies have been essential to the mission of the First Steps initiative since the beginning when its legislation identified as its goal "… to provide parents with access to the support they might seek and want to strengthen their families and to promote the optimal development of their preschool children" (Section 59-152-30). Guidelines highlighted in the legislation provide that the activities and services "must be available to young children and families on a voluntary basis and must focus on lifelong learning: (a) school readiness: (b) parenting skills: (c) family literacy: and (d) adult and continuing education" (Section 59-152-100(A) (1)). Because of the strong relationship between parents and families and children's development and readiness for school, First Steps has focused a significant portion of its efforts on improving parenting and family strengthening initiatives in South Carolina.

The 2006 evaluation was unable to determine the value of First Steps parent home visitation strategies either on the parents and families themselves or indirectly their impact on child outcomes. The report described the need for specific and consistent data to be collected across all the types parenting home visitation strategies to allow comparisons to be made between strategies regarding the efficacy of participation. The report also addressed the need for consistent pre- and post-assessment data to be collected statewide. Additionally, analysis was limited by the lack of data on programs and participants. Of particular concern was the inability to account for program content, levels of program quality, and parent outcomes such as the implementation of skills learned.

Evaluation Questions

Evaluation research questions for parent home visitation strategies revisit the same questions as in the 2006 evaluation. The evaluation questions related to parent home visitation strategies are:

1. What are the descriptive characteristics of participants in parent home visitation strategies?
2. Do parent home visitation strategies funded by First Steps increase parental effectiveness related to child nurturance, learning and interaction, language, health and safety?

3. What are the short- and long-term outcomes for children whose parents participate in First Steps parent home visitation strategies when combined with other First Steps strategies?

Methods

Data provided from the First Steps data system as well as the South Carolina data warehouse is used to describe participants of the parent home visitation strategies and to conduct a secondary analysis of parent and child outcomes. As a result of the 2006 evaluation, First Steps implemented new data and implementation requirements for all participants in the parent home visitation strategies. Additionally, First Steps began requiring the use of two standardized parenting and family literacy assessments, the Keys to Interactive Parenting (KIPS) and the Adult-Child Interactive Reading Inventory (ACIRI) to determine the impact of First Steps parenting initiatives state-wide. The KIPS is an observational measure of interactive parenting behaviors. The ACIRI, which is only used with children over the age of 2, is designed to measure key literacy behaviors of both parents and children as they read together interactively. These assessments were used to determine parental effectiveness. Because these new systems and requirement are recent additions, data was only available for this analysis for FYs 2007-08 and 2008-09. Data provided by the South Carolina Department of Education was used to determine short- and long-term outcomes for children of parent home visitation strategies and are included in the section on child outcomes.

Results

Parent Home Visitation Provided

Programs that provide parent home visitation were conducted in 8 First Steps strategies during FYs 2007-08 and 2008-09. These include Parents as Teachers and Parent Child Home (PAT/PCH), Early Steps, English for Speakers of Other Languages (ESOL), Early Education/Head Start, Child Care Scholarship, Centers of Excellence (COE), Health strategies (these are non-NFP Home Visitation), Family Literacy, and mixed programs. Mixed programs are non-standard strategies which include parenting and home visitation.

First Step home visitation strategies attempted 115,773 home visits during the time under study. Over 107,000 were successful while 8,322 were not. Additionally, 12,145 group meetings were

held (see Table 7). The number of successful home visits increased between 2007-08 and 2008-09. Conversely the number of non-successful visits decreased as did the overall number of group meetings.

Table 7. Attempted, Group, and Successful Home Visits by Program Year

	Program Year		
Visit Type	2007-08	2008-09	Total
Attempted Home Visits	5,118	3,204	8,322
Successful Home Visits	49,158	58,293	107,451
Group Meetings	6,209	5,936	12,145
Total	60,485	67,433	127,918

PAT/PCH programs had the single largest number of visit with 48,983 in 2007-08 and over 54,000 in 2008-09. The Centers of Excellence had 9,273 during these same time periods Health programs had 2,418, Scholarship and Family Literacy programs each had approximately 1,400, English as a Second Language (ESOL) had 483 and Early Education/Head Start had 24 (see Table 8).

Table 8. Home Visits and Group Meetings Completed by Strategy and Program Year

	Program Year		
Strategy	2007-2008	2008-2009	Total
PAT/PCH	48,983	54,672	103,655
ESOL	483	0	483
Early Education/Head Start	0	24	24
Scholarship	186	1,232	1,418
Centers for Excellence	2,786	6,487	9,273
Health	1,521	897	2,418
Family Literacy	1,407	0	1,407
Total	55,366	63,312	118,678

The overall average length of successful home visits was 54.5 minutes and the average length of group parenting meetings was 83.8 minutes. The average length of meetings by program type is presented in Table 9.

Table 9. Average Length in Minutes of Parental Meetings by Strategy

Strategy	*M*	SD
PAT/PCH	57.4	32.07
ESOL	61.9	24.37
Early Education/Head Start	40.0	4.17
Scholarship	62.8	19.37
Centers for Excellence	52.5	23.82
Health	56.9	16.48
Family Literacy	58.2	20.39
Total	57.4	31.02

Another way to consider the length of meetings is to consider length of visit in a categorical manner. Table 10 highlights the length of visit times broken into 4 categories of minutes, 1-29, 30-44, 45-60 and 61-350 by program type and year.

Table 10. Number and Percentage of Parental Meetings by Length, Strategy and Program Year

		Program Year					
		2007-08		2008-09		Total	
Strategy	Minutes	N	%	N	%	N	%
PAT/PCH	1-29	469	1.0	75	.1	544	.5
	30-44	18,540	38.2	17,800	32.6	36,340	35.2
	45-60	21,331	43.9	25,401	46.6	46,732	45.3
	61-350	8,244	17.0	11,248	20.6	19,492	18.9
ESOL	1-29	1	.2	—	—	1	.2
	30-44	132	27.3	—	—	132	27.3
	45-60	173	35.8	—	—	173	35.8
	61-350	177	36.6	—	—	177	36.6
Early Education	1-29	—	—	0	0	0	0
	30-44	—	—	22	91.7	22	91.7
	45-60	—	—	2	8.3	2	8.3
	61-350	—	—	0	0	0	0
Scholarship	1-29	2	1.1	55	4.5	57	4.0
	30-44	10	5.4	74	6.0	84	5.9
	45-60	68	36.6	946	76.9	1,014	71.6
	61-350	106	57.0	155	12.6	264	18.4
Centers for Excellence	1-29	26	.9	10	.2	36	.4
	30-44	891	32.4	2,932	45.4	3,823	41.5
	45-60	1,490	54.1	2,174	33.6	3,661	39.8
	61-350	345	12.5	1,349	20.9	1,694	18.4
Health	1-29	87	5.7	3	.3	90	3.7
	30-44	169	11.1	91	10.2	260	10.8
	45-60	1,170	76.9	688	76.9	1,858	76.9
	61-350	95	6.2	113	12.6	208	80.6
Family Literacy	1-29	106	7.7	—	—	106	7.7
	30-44	94	6.8	—	—	91	6.8
	45-60	990	71.6	—	—	990	71.6
	61-350	193	14.0	—	—	193	14.0

Parenting Programs Received by Family

Five thousand five hundred and seven (5,507) families were the recipients of the 119,596 successful group meetings and home visits over both fiscal years under consideration. 2,194 families

participated in either group meetings or successful home visits during fiscal year 2007-08, 1,837 in 2008-09 and 1,476 families participated during both fiscal years.

PAT/PCH was the largest provider of parenting visits (78.3%). Other strategies which provided parenting visit/groups include ESOL, Early Education/Head Start programs, Centers of Excellence, Health, Scholarships and other strategies that provided a mixture of these (Table 11).

Table 11. Total Family Unit Visits Received by Strategy and Fiscal Year

	Program Year							
	2007-2008		2008-2009		Both Years		Total	
Strategy	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Early Steps	1	2.4	40	97.6	0		41	.7
PAT/PCH	1,658	38.5	1,488	34.5	1,166	27.0	4,312	78.3
ESOL	5	100	0		0		5	.1
Early Education/ Head Start	0		13	100.0	0		13	.2
Scholarship	38	27.0	70	49.6	3	23.4	141	2.6
Centers of Excellence	102	32.5	118	37.6	94	29.9	314	5.7
Health	187	51.9	76	21.2	97	26.9	360	6.5
Family Literacy	102	100.0	0		0		102	1.9
2 Types Mixed	101	46.1	32	14.6	86	39.3	219	4.0
Total	2,194	39.8	1,837	33.4	1,476	26.8	5,507	100

Program standards related to parent home visitation strategies require that at least 60% of home visitation clients be identified on the basis of 2 or more readiness risk factors by fiscal year 2011. The most common readiness risk factors identified were TANF eligibility, the lack of a medical home, low maternal education, and teen parenthood (see Table 12). Table 13 indicates progress that parent home visitation strategies have made toward the goal of 2 or more readiness risk factors. During fiscal year 2007-08 41% of all families were identified as having 0-1 risk factors; in 2008-09 the number decreased to 23%. In 2007-08 families with 2 or more risk factors made up 59% of participants whereas in 2008-09 that number increased to 77%. Over 80% of participants who participated for both years had 2 or more risk factors. Overall the percentage of participants with 2 or more risk factors was 67.4% in 2007-08 and 78.5% in 2008-09. PAT/PCH, the largest provider of home visits had 64% of its participants with 2 or more in 2007-08 and 80% the next year. This is well over the FY11 program standards requirement that 60% of home visitation client be identified as having 2 or more risk factors.

Table 12. Parenting Participant Risk Factors by Type of Strategy Provided

	PAT/PCH		4K/Head Start		Scholarship		Centers of Excellence		Family Literacy		Mixed Type		Total	
Risk Factor	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Lacking Medical Home	2,704	62.5	54	33.1	21	13.3	209	60.2	72	72.7	55	32.4	3,115	59.2
TANF	3,233	74.7	130	79.8	115	72.8	246	70.9	62	62.6	153	90.0	3,939	74.8
Referral for Abuse	76	1.8	0		0		8	2.3	0		2	1.2	86	1.6
Referral for Neglect	95	2.2	0		0		11	3.2	0		2	1.5	108	2.1
Substance Abuse	128	3.0	2	1.2	4	2.5	22	6.3	0		3	1.8	159	3.0
Domestic Violence	125	2.9	3	1.8	4	2.5	24	6.9	0		9	5.3	165	3.1
Foster Care	91	2.1	2	1.2	0		13	3.7	0		2	1.2	108	2.1
Teenage Parent	1,162	26.9	8	4.9	28	17.7	62	17.9	47	47.5	27	15.9	1,334	25.3
Low Maternal Education	1,839	42.5	19	11.7	38	24.1	45	13.0	91	91.9	45	26.5	2,077	39.5
Low Birth Weight	364	8.4	11	6.7	6	3.8	40	11.5	1	1.0	11	6.5	433	8.2
Parental Status[1]	308	7.1	1	0.6	8	5.1	25	7.2	0		20	11.8	362	6.9

[1] Parental Status includes Depression, Mental Illness or Intellectual Disability

Table 13. Aggregate Number of Risk Factors by Program Year and Strategy Provided

	Program Year																	
	2007-08						2008-09						2007-09					
	0-1		2		3 or more		0-1		2		3 or more		0-1		2		3 or more	
Strategy	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
PAT/PCH	602	35.6	491	29.1	597	35.3	305	20.7	556	37.8	610	41.5	128	11.4	389	34.6	608	54.0
ESOL	4	66.7	1	16.7	1	16.7	0		0		2	100	4	44.4	1	11.1	4	44.4
Early Education	8	50.1	6	37.5	12	12.5	18	58.1	10	32.3	3	9.7	91	78.4	13	11.2	12	10.4
Scholarship	34	65.4	6	11.5	12	23.1	48	61.6	19	24.4	11	14.1	21	75.0	4	14.3	3	10.7
Centers for	81	64.8	18	14.4	26	20.8	28	23.7	58	49.2	32	27.1	24	23.1	37	35.6	43	41.4
Health	124	62.0	44	22.0	32	16.0	15	17.9	38	45.2	31	36.9	13	18.8	48	69.6	8	11.5
Family Literacy	8	8.2	20	20.4	70	71.4	0		0		0		0		0		1	100
Two Types Mixed	86	81.9	7	6.7	12	11.5	8	33.3	2	8.3	14	58.4	6	14.6	10	24.4	25	60.9
Total	947	41.3	593	25.9	752	32.8	422	23.3	683	37.8	703	38.9	287	19.3	502	33.6	704	47.1

The new First Steps data system allowed for the calculation of the total number and total hours of visits received by families as well as the number of months between the first and last home visitation as well as the average number of visits per family per month. Table 14 highlights these figures by strategy type of home visitation for FYs 2007-08 and 2008-09 as well as for participants who received home visitations for both years. For every strategy, the total number of visits, hours and number of visits per family per month increased between FYs 08 and 09. First Steps FY 2011 program standards require that enrolled families receive at least 2 weekly home visits, the average across all home visitation strategies was 2.95 for FY 2007-08, 3.61 for FY 2008-09 and 2.65 for participants enrolled over both years. Eight five percent of families received more than 2 visitations per month during the FYs under consideration.

Table 14. Average Number, Hours, Length and Duration of Home Visitation Families Received by Fiscal Year and Strategy

	Program Year											
	2007-2008				2008-2009				2007-2009			
	Total Visits	Total Hours	Months Between 1st and Last Visit	# Per Month	Total Visits	Total Hours	Months Between 1st and Last Visit	# Per Month	Total Visits	Total Hours	Months Between 1st and Last Visit	# Per Month
PAT/PCH	14.14	12.16	5.73	3.06	18.26	17.13	5.82	3.67	41.78	41.98	17.27	2.83
ESOL	13.20	13.60	4.64	3.07								
Early Education/					1.85	1.23	3.40	.53				
Scholarship	1.79	2.34	8.05	.54	5.23	5.23	7.38	1.06	7.06	7.02	18.06	.46
Centers for Excellence	11.17	9.33	4.31	2.80	30.03	21.52	6.06	5.47	43.10	43.43	17.55	2.88
Health	4.21	3.79	5.82	1.15	5.26	5.18	5.43	1.35	11.80	11.54	13.29	1.08
Family Literacy	10.75	10.16	4.34	3.35								
Two Types Mixed	23.43	25.07	7.56	3.75	34.44	34.54	7.69	5.48	36.83	39.75	18.36	2.42
Total Average	13.20	11.66	5.72	2.95	18.14	16.71	5.96	3.61	38.83	39.63	17.11	2.65

Keys to Interactive Parenting Analysis

There were 3,528 families (with a total of 4,047 adult-child pairs) assessed with KIPS during fiscal years 2007-2008 and 2008-2009. The criteria for inclusion in these analyses were as follows:

1) Assessments had to meet First Steps home visit criteria included in the program standards. Standards require that the pretest must be administered 1 month before the visits begin or up to 45 days after the 1st visit. Post-test must occur before the visits end or up to 2 months after last visit.
2) Assessments for the pairs had to be completed with the same child and adult during pre- and post-testing.

Of the 4,047 pairs 1,389 had only 1 assessment and 1,828 assessments did not meet the qualifications for inclusion in the analysis due to improper administration. The number of qualified tests per year is shown in Table 15. Also included in this table are the numbers of participants who received home visits during both fiscal years under consideration.

Table 15. Administrations by Fiscal Year and Test

	Program Year							
	2007-08		2008-09		2007-09		Total	
	N	%	N	%	N	%	N	%
1 Test	504	44.6	593	44.2	292	19.2	1389	34.8
2 Tests Unqualified	471	41.6	394	29.4	963	63.3	1828*	45.8
2 Tests Qualified	156	13.8	355	26.5	266	17.5	777	19.5
Total	1131	100.0	1342	100.0	1521	100.0	3994	100.0

**Note:* 53 pairs had unknown visit information

While the overall number of unqualified tests administrations was high, it should be noted that the number of unqualified tests greatly decreased substantially between fiscal year 2007-2008 (41.6%) to (29.4%) in 2008-2009.

Programs that provide parent home visitation are conducted in 6 First Steps strategies. Some participants (197) received more than one form of parenting program. Table 16 indicates the number of assessment conducted by each strategy as well as the number of qualified and unqualified assessments during fiscal years 2007-08 and 2008-09. The largest overall number of assessments was conducted by the PAT/PCH programs.

Table 16. Number and Percentage of Qualified and Unqualified KIPS Assessments

	KIPS Test Status						
	1 Test		2 Tests Unqualified		2 Tests Qualified		Total
Program Type	*N*	*%*	*N*	*%*	*N*	*%*	
Early Steps	6	24.0	18	72.0	1	4.0	25
PAT/PCH	1144	33.9	1580	46.8	653	19.3	3377
ESOL	6	100.0	0		0		6
Scholarship	24	85.7	4	14.3	0		28
Centers of Excellence	84	26.7	146	46.3	85	27.0	315
Family Literacy	37	80.4	8	17.4	1	2.2	46
2 Types Mixed	88	44.7	72	36.5	37	18.8	197
Total	1389	34.8	1828	45.8	777	19.5	3994

In order to examine whether bias exists for the qualified sample, a comparison of risk factors for the qualified and unqualified sample was conducted. As the 12 risk factors are highly correlated, factor analyses were conducted and as show in Table 17 2 factors were identified: Behavior Risk (referral for abuse and/or neglect, substance abuse, domestic violence, foster care, parental depression, mental illness or intellectual disability, low-birth weight, whether family has a medical home) and SES Risk (TANF, mother's education, teenage mother, and income level). Factor loadings smaller than .30 were suppressed for clearer presentation but are still included in the overall factor.

Table 17. Factor Loadings for First Steps Risk Variables for KIPS Qualified Tests Recipients

	Factor Loadings	
Risk Variable	Behavior Risk	SES Risk
Referral for Abuse	.676	
Referral for Neglect	.676	
Substance Abuse	.589	
Domestic Violence	.581	
Foster Child	.391	
Parental Depression, Mental Illness or	.368	
TANF		.515
Mother's Education Level Less than High		.697
Teenage Parent		.663
Income Level		-.486
Total Variance Explained	28.47%	

Analysis (see Table 18) indicated that the groups were not significantly different on the Behavior Risk scale but were significantly different on the SES Risk scale. This demonstrates that the more financially at-risk the participants were, the less likely they were to have a qualified assessment.

Table 18. Mean Factor Scores of Risk Scales

Risk Factors		*N*	Mean Factor Score
Behavior Risk	1 Test	1354	.117
	2 Tests Unqualified	1804	.104
	2 Tests Qualified	752	.036
			—
SES Risk	1 Test	1354	.132
	2 Tests Unqualified	1804	.112
	2 Tests Qualified	752	.008
			**

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

All qualifying assessments from both fiscal years were combined so as increase sample size and strengthen analyses. Using the 777 qualified pairs, t-tests analysis was conducted to examine whether the gains from pre to post are significant. As Table 19 indicates the participants both overall, and for each treatment length group had significant increases in KIPS scores between their pre- and post-assessments.

Table 19. KIPS Mean Pre and Post Assessment Scores by Length of Treatment

		Length of Treatment (Months)				
Assessment	Total Score	1-3	4-6	7-9	10-12	>12
Pre	3.06	3.31	2.98	3.05	3.25	3.08
Post	3.59	3.62	3.54	3.53	3.58	3.74
	**	**	**	**	*	**
N	777	84	341	168	39	145

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Regression analysis was then conducted to examine whether the amount of gain is related to the length of treatment, Table 20 highlights the KIPS gains by length of treatment after controlling for risk factors. The results show that length of treatment made a significant difference in the amount of gain overall. Participation for more than 12 months had the greatest gain with 4-6 month of participation not significantly different. For all other groups (1-3, 7-9, and 10-12 months) gains in score are significantly smaller than more than 12 month participants.

Table 20. KIPS Gains by Length of Treatment - Controlling for Family Risk Status

	Length of Treatment Months)					
KIPS	1-3	4-6	7-9	10-12	More than 12	Overall
Gains	.34	.58	.48	.32	.66	
Statistical Significance	**		*	**		**

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

While, analysis showed that the parenting programs were able to significantly increase average scores on the KIPS. This does not clearly answer the question: How much, qualitatively does First Steps parenting programs increase parenting skills. The KIPS scores are designed to be grouped into three Likert scale quality descriptions of parenting skills:

- 1.0 -2.99 Low quality parenting
- 3.0 -3.99 Moderate quality parenting
- 4.0 -4.99 High quality parenting

The average score at pre-assessment (Table 19) was 3.06. This score lies near to the border of low quality parenting. This indicates that First Steps appears to be identifying and recruiting parents in need of parenting support.

Using the skill rating levels, a logistic regression was conducted to determine whether length of treatment impacted the likelihood of participants to raise their score to the next level of parenting quality (e.g. from low to moderate or moderate to high) while controlling for risk status.

Analysis indicated that the length of treatment was significantly related to the likelihood of parents to increase the quality of their parenting skills after controlling for risk factors both from low to moderate and for moderate to high ($p < .05$ for each analysis)(see Table 211). Sixty six percent of the parents who scored low at pre-test rose to moderate quality parenting. Ten to twelve month participants had the largest percentage of parents (93%) moving from poor to moderate quality. No group when compared to greater than 12 month participants was significantly different except 7-9 month participants which had the lowest percentage moving from low to moderate quality parenting.

Percentages for parents attempting to move from moderate to high levels of quality are lower (44.2%) when compared to those who move from low to moderate. Participants who experienced home visitation for more than 12 months had the highest percentage (57%) while 4-6 month

participants were not significantly different. All the others have significantly lower percentages of gain when compared to those who participated more than 12 months.

Table 21. Number and Estimated Percentage of Participants Who Move to Higher Quality Parenting Skill Level by Length of Treatment

	Low to Moderate Parenting			Moderate to High Parenting		
Length of Treatment	*N*	%	Odds Ratio	*N*	%	Odds Ratio
1-3	27	66	.62	34	32	.35*
4-6	164	69	.69	127	50	.76
7-9	67	46	.28*	78	36	.44*
10-12	15	93	4.47	16	8	.07*
More than 12	71	76	--	42	57	--
Total	232	65.9		136	44.2	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Assessment of Children Interactive Reading Analysis (ACIRI)

There were 2,322 families (2,574 adult-child pairs) assessed with ACIRI during fiscal years 2007-2008 and 2008-2009. The criteria for inclusion in these analyses were as follows:

1) Assessments had to meet First Steps home visit criteria included in the program standards. Standards require that the pretest must be administered 1 month before the visits begin or up to 45 days after the 1st visit. Post-test must occur before the visits end or up to 2 months after last visit.
2) Assessments had to be completed with the same child and adult during pre- and post-testing.

Of these 2,574 pairs with interview data, 1,118 had only 1 assessment and 1,179 assessments did not meet the qualifications for inclusion in the analysis due to improper administration. There were 277 qualified ACIRI assessment fiscal years 2007-2009 (see Table 22).

Table 22. ACIRI Administrations by Fiscal Year and Test Qualification Status

	2007-08		2008-09		2007-09		
	N	*%*	*N*	*%*	*N*	*%*	Total
1 Test	282	39.2	435	54.1	401	38.2	1,118
2 Tests	384	53.3	212	26.4	583	55.5	1,179
2 Tests Qualified	54	7.5	157	19.5	66	6.3	277
Total	720		804		1,050		2,574

While the overall numbers of unqualified tests ACIRI administrations were high, it should be noted that the number of unqualified tests greatly decreased between fiscal year 2007-2008 (53.3%) and 2008-2009 (26.4%). Additionally, qualified tests went up as well from 7.5 to 19.5. There were significant numbers of one test data entered in 2008-09 but this may be due to participants who are still in the program and who have yet to have a second testing. This table also accounts for participants who received home visits during both fiscal years under consideration.

Sample size is always an issue that must be considered by evaluators running complex analyses. In this instance, it must be noted that this is a very small sample size to conduct rigorous analyses with.

Programs that provide family literacy home visits are conducted in 5 First Steps strategies. Table 23 indicates the number of ACIRI assessment conducted by each strategy as well as the number of qualified and unqualified ACIRI assessments during fiscal years 2007-08 and 2008-09. The largest overall number of ACIRI assessments was conducted by the PAT/PCH programs.

Table 23. ACIRI Assessment Status Qualified and Unqualified

	ACIRI Assessment Status						
	1 Assessment		2 Unqualified		2 Qualified		
Program Type	*N*	*%*	*N*	*%*	*N*	*%*	Total
Early Steps	3	21.4	11	78.6	0		14
PAT/PCH	907	42.1	1,009	46.9	237	11.0	2,153
Scholarship	14	66.7	4	19.0	3	14.3	21
Centers of Excellence	118	50.4	93	39.7	23	9.8	234
Family Literacy	7	77.8	2	22.2	0		9
2 Types Mixed	69	48.3	60	42.0	14	9.8	143
Total	1,118	43.4	1,179	45.8	277	10.8	2,574

The risk factor scales created from home visitation data and used in the KIPS analysis were also used in the ACIRI analysis. This analysis was conducted to determine whether bias existed in the qualified sample. As Table 24 indicates the ACIRI test groups were not significantly different on either scale.

Table 24. Risk Scales Factor Scores

Risk Factors		*N*	Mean Factor Score
Behavior Risk	1 Test	1104	.166
	2 Tests Unqualified	1167	.089
	2 Tests Qualified	273	-.003
			—
SES Risk	1 Test	1104	.035
	2 Tests Unqualified	1167	.004.112
	2 Tests Qualified	273	.006
			—

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p <. 10$; —: $p > .10$

All qualifying assessments from both fiscal years were combined so as increase sample size and strengthen analyses. Using the 273 qualified pairs, (4 of 277 were not included due to a lack of risk data) gain scores were calculated for each scale of the instrument. Analysis indicated participants had significant increases in ACIRI scores between their pre- and post-assessments. Mean scores overall and by length of treatment along with significance levels are shown in Table 25.

Table 25. ACIRI Pre and Post Assessment Scores by Length of Treatment

			Length of Treatment (Months)				
ACIRI Scales			Total Sample	1-3	4-6	7-12	> 12
Adult							
1	Enhancing	Pre	2.17	2.26	2.17	2.20	2.02
	Attention to Text	Post	2.57	2.52	2.52	2.65	2.61
			**	*	**	**	**
2	Promoting Interactive	Pre	1.67	1.61	1.68	1.71	1.58
	Reading and Supporting	Post	2.21	2.20	2.13	2.29	2.34
	Comprehension		**	**	**	**	**
3	Using Literacy Strategies	Pre	1.22	1.28	1.24	1.21	1.10
		Post	1.82	1.79	1.82	1.81	1.89
			**	**	**	**	**
Child Scales							
4	Enhancing Attention to Text	Pre	2.06	2.13	2.04	2.12	1.89
		Post	2.41	2.25	2.36	2.50	2.50
			**	—	**	**	**
5	Promoting Interactive	Pre	1.46	1.44	1.51	1.44	1.33
	Reading and Supporting	Post	2.02	1.95	1.97	2.07	2.12
	Comprehension		**	**	**	**	**
6	Using Literacy Strategies	Pre	1.16	1.17	1.20	1.10	1.13
		Post	1.71	1.56	1.77	1.65	1.83
			**	*	**	**	**
		N	273	34	123	86	34

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

The ACIRI does not assign quality status to individual scores instead focusing on the amount of change in assessed behaviors over time. To better understand the relationship between gain and length of treatment two additional analyses were conducted. Length of treatment, as defined by the four categories (1-3, 4-5, 6-11, and greater than 12 months) and length of treatment as defined by a continuous variable (length of treatment in months) were used to predict gains after controlling for risk factors.

Results, presented in Table 26, generally indicated that gains do increase by length of treatment as defined by the four categories after controlling for risk status. Results demonstrated a consistent and positive, albeit non-significant, trend from shorter treatment with smaller gains to longer treatment and greater gains.

Because of the linear relationship between length of treatment and the gains, a second regression was conducted using a continuous variable (length of treatment in month) as the predictor. Findings indicated a trending toward significant gain for each month the participants remain in treatment for 4 of 6 scales. Each month in treatment increased the ACIRI score by .017 — .021.

Sample size is an important issue in these specific analyses. The sample size may not be sufficient to adequately measure whether length of treatment makes a statistically significant difference. The qualified sample for the KIPS was 777, three time larger than the qualified sample available for the ACIRI analyses while the KIPS results can significantly show that length of treatment is important for meaningful gains; the ACIRI results can only suggest so.

Table 26. ACIRI Gains by Length of Treatment -- Controlling for Family Risk Status

		Length of Treatment (Months)				Overall
ACIRI Scales		1-3	4-6	7-12	>12	Monthly Gain
Parent Scales						
1	Enhancing Attention to Text	.271 †	.350 —	.469 —	.565	.018 †
2	Promoting Interactive Reading and Supporting Comprehension	.605 —	.457 *	.578 —	.763	.020 †
3	Using Literacy Strategies	.507 —	.580 —	.624 —	.794	.017 —
Child Scales						
4	Enhancing Attention to Text	.138 *	.310 †	.344 —	.594	.022 †
5	Promoting Interactive Reading and Supporting Comprehension	.518 —	.458 *	.609 —	.778	.021 †
6	Using Literacy Strategies	.391 †	.563 —	.541 —	.710	.014 —

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Summary

During the 2006 evaluation, there were considerable concerns raised regarding First Steps parenting programs. While data that was available indicated the programs were clearly targeting the most vulnerable families, the evaluation was unable to determine the efficacy of home visitation programs. This inability was due to a lack of consistent data collection across programs as well as a

lack of a common pre- and post-assessment collected state-wide. In response, First Steps made significant changes to the data system and programmatic requirements were standardized and tightened. This evaluation looked at the 2 years of data available since the modifications. Progress is clearly evident.

Data that was available during the current evaluation indicated that First Steps is still targeting the most vulnerable families. During the two FYs under consideration here, 59% of the participants in FY 2007-08 and almost 76% of participants in FY 2008-09 had two or more risk indicators. For participants enrolled for both of the two years under consideration more than 80% had two or more risk indicators. This indicates progress made toward the First Steps goal that recipients of parent home visitation strategies have 2 or more readiness risk factors. The most familial risk factors indicated were lacking a medical home, the receipt of TANF, and low maternal education.

Eight First Steps strategies have parent home visitation as a component. An astonishing, 107,000 successful home visits as well as 12,145 group meetings occurred during FYs 08 & 09. Over 103,000 of these were conducted by PAT/PCH programs. The number of unsuccessful home visits dropped from 5,118 for FY 08 to just 3,204 during FY 09 and the number of successful visits increased. Eight five percent of families received more than 2 visitations per month during the FYs under consideration.

A key component of new First Steps data requirements included the use of common state-wide assessments for home visitations strategies. New First Steps regulations required the use of two instruments, Keys to Interactive Parenting (KIPS) for parenting programs and the Adult-Child Interactive Reading Inventory (ACIRI) for family literacy programs.

Like the family risk factors, there was evidence in KIPS pre-assessment scores that First Steps continues to identify and recruit parents in need of parenting support. Participants saw significant increases in KIPS scores between their pre- and post-assessments. Length of treatment was significantly related to the ability of parents to increase the quality of their parenting skills, families who participated 4-6 and more than 12 months had the greatest gains.

Overall, 54% of participants who scored low quality of parenting improved to a moderate quality of parenting. Forty four percent who scored moderate parenting skills moved to high quality

parenting. And, 11.9% who had low quality parenting at pre-test increased their skills to high quality after participating in First Steps home visitation strategy. The lower number of participants who move from moderate to high-quality parenting indicates that it is easier to assist poor parenting skills parents to develop moderate parenting skills than it is to assist moderate parenting skills parents to develop high quality skills. Moving from poor to great parenting skills is the most difficult.

There were 277 qualified ACIRI assessments available for analysis during FYs 08 and 09. The number of unqualified tests greatly decreased from 53% in FY 08 to 26.4% in FY 09. Additionally, qualified tests during this period went up from 7.5 to 19.5. There were significant numbers of pre-test data entered in FY 09 most likely due to participants who are still in programs and have yet to have a post-assessment.

Programs that provide family literacy home visits are conducted in 5 First Steps strategies with the largest overall number of ACIRI assessments conducted by the PAT/PCH programs. All qualifying assessments from both fiscal years were combined so as increase sample size and strengthen analyses. The qualified sample for the ACIRI was 277 compared to the qualified sample for the KIPS that was three time larger.

Analysis indicated participants had significant increases in ACIRI scores between their pre- and post-assessments and that gain does increase by length of treatment. There was a consistent and positive, albeit non-significant, trend from shorter treatment with smaller gains to longer treatment and greater gains. The sample size was not sufficient to adequately measure whether length of treatment made a statistically significant difference. However, if the KIPS sample were the same size as the ACIRI, results would most likely be very similar to these. The trend in the ACIRI sample mirrors the KIPS in that gains increase with length of intervention. Nevertheless, while the KIPS results can significantly show that length of treatment is important for meaningful gains, the ACIRI results can only suggest so.

Child Care Strategies

Because of the strong relationship between child care quality and children's development and readiness for school, First Steps has focused a significant portion of its efforts on improving child care experiences for children in South Carolina. The goals of First Steps to School Readiness in the area of child care are to:

- Increase the availability of quality childcare choices for parents as measured by increasing numbers of child care providers operating at higher levels of quality.
- Increase the number of child care vouchers available to SC families for quality child care.
- Increase the school readiness focus in child care settings.
- Increase the leverage of federal and private resources to serve the state's most at-risk children.
- Increase the number of child care workers achieving progress toward early education certification and continued professional development.
- Improve the quality of physical and learning environment in child care settings of all type.
- Expand public and private partnerships in 4K education.

The three primary areas in child care that First Steps focuses on are child care quality enhancement, child care worker professional development, and expanded access to quality child care. Strategies adopted by First Steps include the following:

- Quality enhancement: First Steps provides funds to help child care providers improve their quality by upgrading their child care licensing or ABC-enhanced requirements and by offering technical assistance and mentoring.
- Staff training and development: First Steps provides and funds staff training, development and mentoring to improve quality in child care settings meeting high quality standards.
- Increased availability of child vouchers: First Steps provides funds to increase the number of child care subsidies to eligible families.
- Teacher Education and Compensation Helps (T.E.A.C.H.©) funding: As a contractor of the SC department of Social Services, First Steps administers the T.E.A.C.H. program which

provides federally funded scholarships for teachers who work in child care settings to complete coursework in early childhood education.

Findings from the 2006 Evaluation

The 2006 First Steps evaluation described a link between the provision of quality services provided in child care and the most disadvantaged South Carolinians. Evidence showed that recipients of First Steps child care scholarships and ABC vouchers were disproportionately poor and minority. It highlighted that the First Steps goal of reaching the most at-risk children and families was being achieved.

There was limited, self-reported evidence that the programs those children might attend were improving in quality and that those improvements could be linked to participation in quality enhancement activities.

Self-reported quality ratings were significantly correlated to the teachers' levels of education, the amount of training received in the last twelve months, and the focus on training in staff meetings. Participants in First Steps quality-enhancement initiatives overwhelmingly reported high levels of satisfaction with the quality-enhancement programs that First Steps subsidizes.

Children and families in 2003–04 who were recipients of First Steps child care expansion initiatives were overwhelmingly minorities, and were recipients of food stamps, Medicaid, and TANF at higher rates than their non-First Steps counterparts. They were likely to have received free and reduced lunch and to have had handicapping conditions. Their mothers had significantly low education levels and a large percentages of the children had health problems and handicapping conditions.

While the information presented provided support for the argument that quality enhancements improved program quality, the evidence did not support statements of causality. Data did not allow for definitive statements or broad generalizations to outcomes benefiting the First Steps population of programs and children. It was extraordinarily clear however, that in the areas of child care expansion, First Steps was clearly serving the poorest and neediest of families.

Evaluation Questions

Due to budget constraints, analysis that could be accomplished in this evaluation was limited to data compiled in the First Steps data system. Research questions that could be answered were:

1. What types of centers receive quality enhancement?
2. What types of technical assistance are used by child care centers as a result of First Step funding?
3. What types of materials are purchased using quality enhancement funds?
4. What types or forms of teacher training (enhancements) are provided to programs/staffs?
5. Is there evidence of program quality improvement as a result of the training provided by First Steps funding?

The pivotal question in child care continues to focus on the type of preschool experiences that children receive in the programs they attend. The logic model, while indirect is research-based, that is higher quality preschool experiences lead to better child outcomes. The focus here, as in the 2006 evaluation, continues to be on the impact of investments in teachers and classrooms.

Methods

The First Steps data system and the South Carolina Office of Research and Statistics data warehouse were utilized to describe the characteristics of families receiving child care funds. The First Steps data system was used to address questions regarding quality enhancement initiatives.

Findings

Because of data issues, a decision was made to limit the quality enhancement evaluation to those centers for which there were pre and post-Environmental Rating System (ERS) data. Of the 1,074 total assessment records provided, (Table 27) highlights the number of records for which there was no second matching record (i.e., possessing the same identification number).

Table 27. Number of Match and Unmatched Assessment Records for FYs 2007-08 and 2008-09

	FYs 2007-08 and 2008-09	
	Records	
ERS Scale	Pre/Post Matched	Unmatched
ECERS	152	65
ITERS	128	62
FCERS	22	20
FDCERS	10	14
PAS	4	7
Total	316	168

Characteristics of Children Receiving First Steps Child Care Scholarships

As can be seen in Appendix B, participants in the child care scholarship initiative were predominantly male and non-white with high rates of participation in Medicaid and Food Stamps. The average Free Lunch Index over the five years under consideration was 1.6 (0 = No Food Stamps; 1=Reduced Lunch; and 2 = Free Lunch). Approximately 7% of the children received TANF; almost 11% were born low-birth weight and Mother's education at birth averaged 12.1 years.

Child Care Quality Enhancement

Three hundred and twelve programs were evaluated with both a pre and post Environmental Rating Scale (ERS) during FYs 2008 and 2009. Assessments from both years were combined to increase sample size. One hundred fifty two were evaluated with the Early Childhood Environment Rating Scale (ECERS), 128 with the Infant-Toddler Environmental Rating Scale (ITERS), and 10 with the Family Child Care Environmental Rating Scale (FCCERS). Four programs were evaluated using the Program Administration Scale (PAS).

Demographics are presented only on those centers with a pre-/post-ERS assessment. Only 30 centers had information on total enrollment and employees. Centers with an ECERS pre/post assessment had an average enrollment of 38 children and approximately 5½ employees. Centers with a pre/post ITERS assessment had an average enrollment of 33 infants/toddlers and almost 6 employees (Table 28).

Centers with an ECERS had on average been open 14 years while the centers with a pre/post ITERS assessment had been open almost 15 years. There is overlap between centers that received ITERS and ECERS assessments. Many centers that had both infant/toddler and preschool classrooms

had both ITERS and ECERS assessment(s). The majority of QE recipients were private for-profit centers (53% and 52%). Private non-profit (12.5% and 14.8%) and faith based (12.5% and 15.6%) were the next largest participants (Table 29).

Table 28. Quality Enhancement Center Size by ERS Assessment

	ERS Assessment			
	ECERS		ITERS	
Demographics	*M*	*SD*	*M*	*SD*
Total Enrollment	37.69	30.36	32.63	23.97
Total Employees	5.56	3.85	5.72	4.32

Table 29. Quality Enhancement Center Demographics by ERS Assessment

	ERS Assessment			
	ECERS		ITERS	
Demographics	*M*	*SD*	*M*	*SD*
Years Open	14.18	11.98	14.93	12.27
Capacity	92.23	86.63	102.50	92.64
	N	*%*	*N*	*%*
Private For Profit	80	52.6	66	51.6
Private Non-Profit	19	12.5	19	14.8
Faith-based	19	12.5	20	15.6
Head Start	6	3.9	0	
School District	5	3.3	6	4.7
Other	5	3.3	3	2.3
Missing	18	11.8	14	10.9
Total	152	100	128	100

The teachers and directors who participated in First Steps quality enhancement strategies were predominantly high school graduates (46% and 47%). While 15% of preschool teachers and 9% of infant/toddler teachers had associate degrees, only 13% of preschool classroom teachers and 10% of infant/toddler teachers had bachelor degrees. In additional to participating in First Steps quality enhancements, large percentages (88% and 93%) of these teachers were also receiving T.E.A.C.H. scholarships (Table 30).

Table 30. Educational Training of QE Teacher Participants by ERS Assessment

	ERS Assessment			
	ECERS		ITERS	
Educational Training	*M*	*SD*	*M*	*SD*
Education				
High School Diploma	45.6	29.4	47.0	26.3
Associate Degree	15.2	21.3	9.4	13.1
Bachelor Degree	12.9	18.4	10.2	13.1
Master's Degree or Higher	3.9	12.0	2.7	6.4
Receiving T.E.A.C.H scholarship	88.5	25.6	92.81	21.2

Note: ECERS n=152; ITERS n=128

A description of the First Steps quality enhancement experience for centers (with pre/post assessments) are highlighted in Table 31 On average ECERS classrooms received almost 10 months of classroom visits, with each classroom experience approximately 24 visits or about 2 ½ per month. Likewise ITERS classrooms participated for just over 12 months of classroom visits, with each class averaging just over 40 visits or 3 visits per month. Each ECERS class visit averaged 1.16 hours with an average total training time of just over 34 hours. Each ITERS class visit average 1.6 hours with an average total training time of almost 56 hours. However, given the large amount of missing data related to these records, it is likely that the amount and length of visits is underestimated.

Table 31. Number, Length and Total Hours for Quality Enhancement Classrooms

	ERS Assessment	
	ECERS	ITERS
	M	*M*
Average Number of Months of Class	9.76	12.48
Average Number of Class Visits Total	24.08	40.73
Average Class Visits per months	2.56	3.08
Average Total Training Hours	34.03	55.76
Average Total Mentoring Hours	4.45	4.87
Average Training hours per class visit	1.61	1.60
Average Mentoring hours per class visit	.15	.10

Topics covered in classroom technical assistance were broad and varied. For both ECERS and ITERS classrooms the use of materials (30.9% and 30.7%), room arrangement (24.8% and 22.9%), quality interactions (24.1% and 29.8%), safety (19.9% and 27.2%) and child observation (19.7% and 21.3%) were the most common topics (Table 32).

Table 32. Topics of Classroom TA

	ERS Assessment			
	ECERS		ITERS	
	M	SD	M	SD
Growth and Development	12.65	19.75	16.55	20.41
Observation	19.76	24.48	21.37	25.03
Class Management	16.98	21.61	19.51	22.38
Materials	30.98	27.99	30.72	26.03
Cognitive	3.60	10.04	6.43	13.91
Interactions	24.17	25.58	29.89	26.78
Community Resources	2.63	9.73	.88	2.39
Diversity	3.66	8.01	3.93	9.47
Curriculum	11.23	17.71	12.41	16.10
Screening	5.49	10.29	5.42	8.41
Goal Planning	7.23	11.55	6.62	9.23
Goal Writing	2.78	6.58	2.45	5.72
Safety	19.99	23.00	27.27	25.07
Infants	11.01	16.88	19.48	22.12
Language	8.82	14.90	14.21	18.32
Literacy	9.98	15.93	11.75	14.35
Lesson Planning	4.12	9.09	3.87	9.69
Math	4.18	9.228	4.82	11.40
Science	6.47	13.61	5.69	10.88
Parents	3.89	10.56	3.15	8.23
Physical	3.09	7.06	6.00	10.47
Discipline	4.84	9.83	7.58	14.27
Room Arrangement	24.80	22.73	22.96	18.79
Scheduling	14.80	18.51	16.43	17.80
Social	4.19	10.09	6.24	11.30
Special Needs	1.18	3.76	.78	1.94
Brain Development	1.41	4.99	2.29	6.83
Block Play	5.32	9.47	6.16	10.58
Time Management	2.06	5.34	3.61	9.25
Transitions	5.62	8.92	8.73	13.32
Translation	.05	.41	.11	.54

Of the 152 classrooms with a pre/post ECERS specific center data was only available for 32. Similarly, of the 128 classrooms with a pre/post ITERS, specific center data was also only available on 32. Table 33 highlights the materials purchased by these centers using First Steps funds.

Table 33. Materials Purchased by Pre/Post ERS Centers

	ERS Assessment	
	ECERS	ITERS
	N	N
Furnishings and Equipment	2	1
Consumables	0	1
Books	1	1
Fine Motor Materials	2	1
Dramatic Play Toys	2	1
Blocks	2	1
Nature/Science Materials	2	1
Music Materials	1	1
Gross Motor Materials	2	1
Curriculum Materials	1	1
Other	0	0

Impact of Quality Enhancement Programs on Program Quality

Three hundred and twelve programs were evaluated with one of the Environmental Rating Scale during FYs 2008 and 2009. Assessments from both years were combined to increase sample size. One hundred fifty two were evaluated with the Early Childhood Environment Rating Scale (ECERS), 128 with the Infant-Toddler Environmental Rating Scale (ITERS), and 10 with the Family Child Care Environmental Rating Scale (FCCERS). Four programs were evaluated using the Program Administration Scale (PAS). Table 34 indicates the length of participation in QE by type of assessment or type of program evaluated.

Table 34. Months between Pre and Post Environmental Rating Scale Scores for Participants in First Steps Child Care Quality Enhancement

	ECERS		ITERS		FDCERS		FCCERS		PAS	
	N	%	N	%	N	%	N	%	N	%
Less Than 3 Months	6	3.9	11	8.6	0		0		0	
3-5 Months	9	5.9	14	10.9	0		4	18.2	2	50.0
6-12 Months	69	45.4	61	47.7	9	90.0	10	45.5	2	50.0
More Than 12 Months	68	44.7	42	32.8	1	10.0	8	36.4	0	
Total	152	100.0	128	100.0	10	100.0	22	100.0	4	100.0

Table 35 highlights ECERS gains overall and by length of time between pre and post assessments. Gains for all scales were significant if time between pre and post assessment was 6 months or more. If the pre/post assessment period was 3-5 months the overall score was significant. The sample size however is extremely small with which to conduct rigorous statistical analyses.

Table 35. Pre and Post Early Childhood Environmental Rating Scale (ECERS) Scores for Child Care Centers Participating in First Steps Child Care Quality Enhancement

		Length of Participation (Months)							
		Overall		3 – 5		6 – 12 s		> 12	
ECERS Scale		Mean	N	Mean	N	Mean	N	Mean	N
Overall Score	Pre	3.74	146	3.98	9	3.90	69	3.55	68
	Post	4.55		4.91		4.68		4.38	
		**		*		**		**	
Space and Furnishings	Pre	3.84	125	3.92	9	4.08	61	3.57	55
	Post	4.67		4.68		4.77		4.56	
		**		†		**		**	
Personal Care Routines	Pre	3.50	124	3.31	8	3.37	61	3.66	55
	Post	4.00		4.68		3.95		3.95	
		**		*		**		—	
Language- Reasoning	Pre	3.97	124	4.24	9	4.16	60	3.72	55
	Post	4.77		4.72		4.93		4.62	
		**		—		**		**	
Activities	Pre	3.06	125	3.70	9	3.21	61	2.79	55
	Post	4.21		4.68		4.40		3.93	
		**		*		**		**	
Interaction	Pre	4.64	125	4.96	9	4.69	61	4.54	55
	Post	5.26		5.37		5.22		5.29	
		**		—		*		**	
Program Structure	Pre	3.93	125	4.76	9	4.28	61	3.41	55
	Post	4.70		5.44		4.97		4.27	
		**		—		**		**	
Parents and Staff	Pre	4.67	66	5.0	4	4.71	37	4.57	25
	Post	5.16		5.9		5.07		5.18	
		**		—		*		*	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 36 highlights ITERS gains overall and by length of time between pre and post assessments. Overall, pre-test scores were quite low and post-test gain on their overall scores was significant. Participants of 6 months or more saw significant gains in all but one scale (Language-Reasoning greater than 12 months).

Table 36. Pre and Post Infant-Toddler Environmental Rating Scale (ITERS) Scores for Child Care Centers Participating in First Steps Child Care Quality Enhancement

				Length Between Pre and Post					
		Overall		3 – 5		6 – 12 s		> 12	
ITERS Scale		*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*
Overall Score	Pre	3.42	117	2.71	14	3.51	61	3.51	42
	Post	4.28		3.86		4.40		4.26	
		**		**		**		**	
Space and Furnishings	Pre	3.55	96	2.84	12	3.59	54	3.77	30
	Post	4.42		3.83		4.51		4.50	
		**		**		**		**	
Personal Care Routines	Pre	2.82	96	2.51	12	2.82	54	2.94	30
	Post	3.51		3.15		3.67		3.37	
		**		—		**		—	
Language- Reasoning	Pre	3.79	97	3.12	13	3.89	54	3.90	30
	Post	4.69		3.69		4.92		4.69	
		**		—		**		*	
Activities	Pre	2.78	98	2.19	14	2.93	54	2.80	30
	Post	3.75		3.76		3.89		3.5	
		**		**		**		**	
Interaction	Pre	4.37	97	3.40	13	4.67	54	4.26	30
	Post	5.08		4.08		5.19		5.30	
		**		—		**		**	
Program Structure	Pre	3.38	95	2.74	12	3.46	54	3.50	29
	Post	4.44		3.53		4.53		4.65	
		**		—		**		**	
Parents and Staff	Pre	4.00	52	3.41	9	4.33	32	3.50	11
	Post	4.45		3.50		4.66		4.61	
		**		—		**		*	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

FDCERS was used to assess First Steps quality enhancement activities in family day cares. Significant gains were made between pre/post assessments (Table 37).

Table 37. Pre and Post Family Daycare Environmental Rating Scores and Family Childcare Environmental Rating Scores for Family Child Care Participants in First Steps Child Care Quality Enhancement

		FDCERS	
		Mean	N
Overall Score	Pre	4.07	10
	Post	4.63	
		*	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: p

Summary

Three hundred and twelve programs were evaluated with both a pre and post Environmental Rating Scale (ERS) during FYs 2008 and 2009. On average ECERS classrooms received approximately 24 visits (averaging 1.16 hours) over 10 months. ITERS classrooms averaged 40 visits (averaging 1.6 hours) over 12 months of classroom.

Gains for all scales on both ITERS and ECERS were significant if the time between pre/post assessments was 6 months or more. Participation for 3-5 months had inconsistent scale findings but their gains in overall score are significant.

There was a large amount of missing data related to these records; of the 152 classrooms with a pre/post ECERS specific center data was only available for 32. Similarly, of the 128 classrooms with a pre/post ITERS, specific center data was also only available on 32. There was little data on items purchased with QE dollars.

School Transition: Countdown to Kindergarten

School transition is one of the newer readiness strategies implemented by First Steps. Because it was introduced in 2005, the school transition program, more specifically Countdown to Kindergarten (CTK), was not included in either the 2003 or 2006 evaluations. The goals of the First Steps school transition programs are:

- Emphasize to parents the value of home activities and hands-on learning specifically as it relates to literacy skills prior to kindergarten,
- Help children gain confidence as they transition into kindergarten,
- Assist parents in understanding the "how to" as well as the importance of parental involvement for their child upon school entry, and
- Increase public awareness of the importance of children being ready for school.

Since 2004, First Steps has served approximately 3,100 children through the school transition strategy CTK. While not the largest strategy funded by First Steps (costing approximately $495,000 per year), it is one of the few state-wide strategies administered at the state level.

Research Questions

Research seems to indicate that there are three important characteristics to kindergarten transition: collaboration and relationships, having a common conceptual model or guide, and having local communities and individuals needs and goals as agents of change (Pianta, Kraft-Sayre 2003). Therefore suggested evaluation questions were developed in response to the goals of the First Steps school transition program and what research indicates regarding successful school transition. Evaluation questions were:

1. What are the descriptive characteristics of teachers who participate in the First Steps school transition programs?
2. What impact does the First Steps school transition program have on home visitor beliefs and attitudes?
3. How do home visitors rate the transition to kindergarten of First Steps school transition program children?
4. What are the descriptive characteristics of children and families who participate in CTK?

3. What is the impact of participation in CTK on parents (i.e., increase use of hands-on learning, understanding of importance of parental involvement, etc.)?

The evaluation questions related to CTK were the most impacted by budget cuts. Several questions related to CTK were forced to be altered and/or delayed until future evaluation. While all of the questions related to participants were kept, all of the programmatic questions (i.e., conceptual model and content and quality) as well as the specific evaluation of individual children's school transition experiences were dropped due to the need for additional data collection to answer them.

Methods

During the summer of 2008 home visitors participating in the summer program were surveyed to determine the impact that the Countdown to Kindergarten had on their beliefs, attitudes, and teaching practices. Parents were surveyed during the summers of 2008 and 2009 regarding the impact of CTK on themselves and their children. These surveys were used for all analyses. The CTK database, which is separate from the First Steps database, was used for descriptive characteristics of home visitors and families. The identification of CTK children in the child outcomes dataset was determined by transferring the CTK dataset to ORS for the assignment of unique identifiers.

Results

Countdown to Kindergarten Home Visitor Survey

Sixty four home visitors completed surveys during the summer of 2008 of which 39% were first time participants. As Table 38 indicates, 61% of home visitors had participated on multiple occasions. Of these, all had participated at least twice, with over 33% participating 4 or 5 times. Almost 80% of the home visitors are the kindergarten teachers of the children they visited during the summer.

Table 38. Number and Percentage of Repeated Home Visitor Participation in Countdown to Kindergarten

Participation Times	*N*	*%*
1	25	39.0
2	14	21.8
3	12	18.7
4	6	9.3
5	7	10.9
Total	64	100.0

Table 39 reports the amount of discussion home visitors describe having with both children and parents regarding academic subjects and behavioral expectations in kindergarten. The vast majority of home visitors reported having significant amounts of discussion about math and reading, but less about writing. While home visitors discuss behavioral expectations with parents, there is less discussion with the children themselves.

Table 39. Home Visitor Reported Amount of Discussion Regarding Kindergarten Expectations

	Amount of Discussion											
	Child						Parent					
	Significant		Some		Small		Significant		Some		Small	
Expectation Area	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Math	45	70.3	18	28.1	1	1.6	46	71.9	18	28.1	0	
Reading	49	76.6	14	21.9	1	1.6	51	79.7	13	20.3	0	
Writing	36	58.3	24	37.5	4	6.3	41	84.1	22	34.4	1	1.6
Behavior	39	60.9	18	28.1	7	10.9	42	85.6	17	26.6	5	7.8

Overwhelmingly home visitors reported significant increases in child familiarity with kindergarten settings as well as confidence and excitement about attending kindergarten as a result of participation in CTK (Table 40). Additionally they believe CTK provides significant assistance in children's transition to kindergarten.

Table 40. Reported Impact of CTK on Children's Familiarity, Confidence and Excitement about Attending Kindergarten

	Amount of Increase							
	Significant		Some		Small		None	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Familiarity with Kindergarten Setting	55	85.9	9	14.1	0		0	
Confidence About Attending Kindergarten	55	85.9	9	14.1	0		0	
Excitement About Attending Kindergarten	60	93.8	4	6.3	0		0	
	Amount of Assistance CTK Provides							
Transition to Kindergarten	57	89.1	7	10.9	0		0	

A major goal of CTK is to assist parents in understanding the importance of parental involvement in their child's school experience. Home visitors were queried as to whether CTK parent were more likely to engage in traditional parental activities such as attending parent meetings or parent-teacher conferences. Home visitors reported that CTK parents are more likely to connect with teachers (parent-teacher conferences, talking to teacher, calling teacher and asking how child is doing).

They also reported that parents often still seem reluctant to attend events or participate in classroom opportunities (help with field trips or volunteer in classroom) (Table 41).

Table 41. CTK Versus Non-CTK Parental Involvement in Child's Educational Experience

	Impact							
	Extremely		Likely		Somewhat		No Influence	
Parental Involvement	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Attend Parent Meetings	28	43.8	34	53.1	2	3.1	—	—
Attend Parent-Teacher Conferences	42	65.6	21	32.8	1	1.6	—	—
Talk to Child's Teacher	51	79.7	13	20.3	—	—	—	—
Call Child's Teacher	49	76.8	13	20.3	2	3.1	—	—
Let Teacher Know Child Will Be Absent	23	35.9	26	40.6	13	20.3	2	3.1
Ask How Child is Doing	50	78.1	14	21.9	—	—	—	—
Attend Special School Events	33	51.8	28	43.8	3	4.7	—	—
Help with Field Trips or Special Events	21	32.8	34	53.1	7	10.9	2	3.1
Volunteer in Classroom	18	28.1	31	48.4	13	20.3	2	3.1
Attend PTO Meeting	19	29.7	31	48.4	11	17.2	2	4.7

Home visitors reported significantly greater frequency of contact with CTK parents than with non-CTK parents (Table 42). They additionally indicated a much greater relational satisfaction with CTK parents over other parents as well (Table 43).

Table 42. Home Visitors/Teachers Contact with CTK versus Non-CTK Parents in Classroom

	CTK Parents		Non-CTK Parents	
Amount of Contact	*N*	*%*	*N*	*%*
Very Frequently	36	70.6	19	37.3
Somewhat Frequently	14	27.5	28	54.9
Somewhat Infrequently	0		2	3.9
Very Infrequently	1	2.0	2	3.9

Table 43. Home Visitors Relationship Satisfaction with CTK versus Non-CTK Parents

	CTK Parents		Non-CTK Parents	
Satisfaction	*N*	*%*	*N*	*%*
Very Satisfying	47	92.2	25	49.0
Somewhat Satisfying	4	7.8	24	47.1
Somewhat Unsatisfying	0		2	3.9
Very Unsatisfying	0		0	

Anecdotally home visitors reported that participating in CTK changed their understanding of the lives of the students and parents in their classrooms. As a result, many report making changes in their instructional techniques and classroom practices as well as the types of experiences they provide for their students. Table 44 highlights the reported impact of that participation. Over 75% of home visitors

reported making some or a great deal of change in their instruction, experiences, practices, activities on the first day of school and the methods by which they communicate with parents as a direct result of their CTK experience.

Table 44. Changes in Classroom Practices as a Direct Result of CTK Participation

	Teacher Reported Amount of Change							
	Great Deal		Some		Little		None	
Classroom Practice	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Instruction	13	20.3	37	57.8	9	14.1	5	7.8
Experiences	17	26.6	34	53.1	8	12.5	5	7.8
Practices	14	21.9	35	54.7	8	12.5	7	10.9
First Day of School Activities	19	29.7	31	48.4	7	10.9	7	10.9
Methods Used to Communicate with Parents	17	26.6	31	48.4	10	15.6	6	9.4

Countdown to Kindergarten Parent Responses

Parents were surveyed at the beginning and end of the CTK initiative in 2009. This allowed for evaluation of the impact of CTK on child and parental attitudes and the potential impact on future behavior. Prior to the beginning of CTK, approximately 38% of parents expressed that their child had little or no familiarity with a kindergarten classroom and about 20% of parents felt the same. Additionally, while most parents felt they understood or were familiar with kindergarten teacher expectations regarding academic subjects, most felt their children had little/no or only somewhat understanding regarding expectations (Table 45). Additionally, despite parents reports of children lacking understanding of expectation they overwhelmingly report children being both confident and excited to attend Kindergarten (Table 46).

Table 45. Parent and Child Familiarity with Kindergarten Prior to CTK

	Familiarity							
	Significant		Somewhat		Little		None	
Familiarity with Kindergarten Classroom	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Child	213	30.5	215	30.8	158	22.6	112	15.8
Parent	325	46.5	237	33.9	96	13.7	41	5.9
Familiarity with teacher expectations	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Child								
Math	83	11.8	293	41.8	222	31.7	103	14.7
Reading	89	12.7	278	39.7	227	32.4	106	15.1
Writing	125	18.0	280	40.2	214	30.7	77	11.1
Behavior	301	42.9	262	37.4	103	14.7	35	5.0
Parent								
Math	320	45.6	259	36.9	100	14.2	23	3.3
Reading	284	40.7	262	37.5	122	17.5	30	4.3
Writing	292	42.0	258	37.1	120	17.3	25	3.6
Behavior	413	59.1	206	29.5	63	9.0	17	2.4

Table 46. Child Confidence and Excitement about Attending Kindergarten

	Extremely		Somewhat		Slightly		None	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Confidence	375	53.6	226	32.3	86	12.3	12	1.7
Excitement	485	69.2	156	22.3	48	6.8	12	1.7

At the completion of CTK, and most likely as a result of the significant amount of discussion parents reported home visitors having with children, both parents and children reported a significant increase in their familiarity with a kindergarten classroom (Table 47). Parents also reported their children having significant increases in confidence and excitement about attending kindergarten (Table 48).

Table 47. Amount of Discussion with Child and Parent Regarding Expectations for Kindergarten

	Amount of Discussion							
	Significant		Some		Small		None	
Teacher Expectations	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Child								
Math	477	74.5	144	22.5	15	2.3	4	.6
Reading	495	77.3	127	19.8	15	2.3	3	.5
Writing	460	72.0	161	25.2	16	2.5	2	.3
Behavior	461	72.5	152	23.9	19	3.0	4	.6
Parent								
Math	492	77.0	136	21.3	8	1.3	3	.5
Reading	522	81.7	111	17.4	5	.8	1	.2
Writing	499	78.1	131	20.5	7	1.1	2	.3
Behavior	473	74.7	148	23.4	9	1.4	3	.5

Table 48. Increase in Familiarity, Confidence and Excitement about Attending Kindergarten

	Amount of Increase							
	Significant		Some		Small		None	
Familiarity with Kindergarten Setting	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Child	393	61.7	218	34.2	21	3.3	5	.7
Parent	407	63.8	192	30.1	26	4.1	13	2.0
Child Confidence and Excitement								
Confidence	473	74.4	148	23.3	12	1.9	3	.4
Excitement	506	79.4	114	17.9	12	1.9	5	.8

A very important component of CTK is its goal to "assist parents in understanding the "how to" as well as the importance of parental involvement for their child upon school entry." Pre/post evaluation of parent's likelihood of participating in specific behaviors that teacher's often identify as important saw gains. The number and percentage of parents who reported they were likely or extremely like to participate as a result of CTK increased. The largest increase was in parent's willingness to volunteer in the classroom and help out with field trips or special events (Table 49).

Table 49. Likelihood of Parent Participation Pre and Post CTK

	Pre		Post	
	Extremely Likely/Likely		Extremely Likely, Likely or No Change	
	N	*%*	*N*	*%*
Attend parent meetings	515	83.6	587	95.2
Attend parent-teacher conferences	538	87.6	597	97.2
Talk to child's teacher	559	90.8	606	98.5
Call child's teacher	513	83.5	571	92.9
Let teacher know child will be absent	524	85.3	583	94.9
Ask teacher how child is doing	554	90.3	602	98.2
Attend special school events	540	87.2	602	97.2
Help with field trips or special events	454	73.7	553	89.9
Volunteer in classroom	373	60.7	505	82.2
Attend PTO meeting	445	72.2	554	89.9

Summary

First implemented during the summer of 2005, Countdown to Kindergarten is a relatively new First Steps strategy. While not the largest strategy funded by First Steps (costing approximately $495,000 per year), it is one of the few state-wide strategies administered at the state level. The difficulties of implementation and evaluation of new strategies has been a constant theme throughout First Steps history. CTK is no different. While First Steps has served approximately 3,100 children through the school transition strategy program curriculum, staff development, and recruitment strategies have been developing and slowly solidifying. Data is not available via a standardized process but is only available through self-report. Rigorous evaluation has yet to occur.

Self-report data was available for home visitors and from parents. Overwhelmingly home visitors reported significant increases in child familiarity with kindergarten settings as well as confidence and excitement about attending kindergarten as a result of participation in CTK Additionally they believe CTK provides significant assistance in children's transition to kindergarten.

Home visitors believe CTK parent are more likely to engage in traditional parental activities such as attending parent meetings or parent-teacher conferences in Kindergarten. They also report that CTK parents are more likely to connect with teachers by talking to teacher and calling the teacher to ask how their child is doing. It was also reported however, that parents often still seem reluctant to attend school events or participate in classroom volunteer opportunities. Home visitors reported significantly

greater frequency of contact with CTK parents than with non-CTK parents and indicated a much greater relational satisfaction with CTK parents over others as well.

Anecdotally home visitors describe the impact that participation in CTK has had in their understanding of the lives of the students and parents in their classrooms. As a result, many indicate they have made significant changes in their instructional techniques and classroom practices as well as the types of experiences they provide for their students. As a result of CTK participation, over 75% of home visitors reported making some or a great deal of change in their instruction, experiences, practices, activities on the first day of school and the methods by which they communicate with parents.

At the completion of CTK both parents and children reported a significant increase in their familiarity with a kindergarten classroom. Parents also reported their children having significant increases in confidence and excitement about attending kindergarten. Pre/post evaluation of parent's likelihood of participating in specific behaviors that teachers often identify as important showed that post-CTK all identified behaviors saw gains. The number and percentage of parents who reported they were likely or extremely like to participate as a result of CTK increased. The largest increase was in parent's willingness to volunteer in the classroom and help out with field trips or special events

First Steps to School Readiness 4K Child Outcomes

Increased access to high-quality early education continues to be at the heart of the First Steps initiative. As can be seen in Figure 1, First Steps has spent approximately 20% of its budget providing and/or increasing access to early education services. Since the 2006 evaluation and as a response to the decision in Abbeville County School District, et al., v State of South Carolina, et al.; the South Carolina General Assembly included Proviso 1.75 in the 2006-2007 general appropriations created the South Carolina Child Development Education Pilot Program (CDEPP) which among its provisions included the expansion of 4K in plaintiff districts in public and private settings. The Office of First Steps was given specific responsibility for implementing the program in private settings. As a result, evaluation questions that address private settings will be included with those that focus on other 4K settings First Steps (FS) funds.

The evaluation questions related to the participants in early education programs are as follows:

1. What are the short- and long-term outcomes for children who participated in First Steps 4K-funded programs?
2. What are the short- and long-term outcomes for First Step children who did not attend 4K?
3. What are the short-term outcomes for FS children who participated in the First Step funded CDEPP programs in private settings?
4. What are the short- and long-term outcomes for First Steps 4K children combined with other First Steps strategies?

Questions 1 and 2 are answered in this chapter; questions 3 and 4 are answered in subsequent chapters. All outcome measures and statistical methods described in this chapter as well as descriptions of the sample apply to the two following chapters that focus on child outcomes in CDEPP and in combined strategies.

Sample

Addressing research questions 1, 2, and 3 required the selection of corresponding samples of First Steps and matched non-First Steps children for comparison. The descriptions of the samples selected are presented in Table 49 by research question.

For questions 1 and 2 two sets of children were selected for comparison: the First Steps sample to be evaluated and a matched non-First Steps non-4K group. For question 3, three groups of children were selected for comparison: CDEPP participants (as the First Steps group to be evaluated) and two matched non-First Steps groups. Of these two matched samples, one sample consisted of non-4K children and the second of non-First Steps 4K children participating in full-day 4K programs. For question 4 all comparison groups consisted of First Steps children who participated in 4K programs only or 4K programs combined with either parenting or family literacy strategies.

All 5 FYs of children were included in answering research questions 1 and 2 (Table 50). Research question 3 utilized only FY 2007-08. The sample for research question 4 does not contain FY 2003-04 due to its very limited number of First Steps children participating combined strategies. As the evaluation is not a random-assignment design, propensity score matching was employed in the selection of all matched non-First Steps groups in order to achieve equivalency in the samples' demographic and socio-economic status (SES). Eleven demographic and socio-economic variables were included in propensity score matching. A complete description of the variables is in the Statistical Approach section which follows. The matched non-First Steps comparison sample groups were found to be equivalent to their corresponding First Steps groups on all the 11 variables included (Appendix D) with no significant differences found in any of the pairings.

It is important to note the definition of a First Steps 4K child. A First Steps 4K child is any child who received any form of First Steps funding and attended 4K. It is only in the CDEPP program, a relatively recent First Steps initiative that First Steps children who received 4K are clearly in a controlled First Steps 4K environment. All other First Steps 4K children may be enrolled in non-First Steps 4K. All outcomes should be interpreted with this definition in mind.

Table 50. Sample Definition by Research Question and Fiscal Year

Research Question	Fiscal Year	Sample		
		First Steps	Non-First Steps Non-4K	Non-First Steps with 4K
1	FY 2003-04 FY 2004-05 FY 2005-06 FY 2006-07 FY 2007-08	All children identified as • FS participants (attending FS funded programs); • 4K participants.	Selected by propensity score matching from all children meeting the 3 criteria at the same time[1].	NA
2	FY 2003-04 FY 2004-05 FY 2005-06 FY 2006-07 FY 2007-08	All children identified as: • FS participants of parenting, literacy, child care, or health programs; • Non-4K participants.	Selected by propensity score matching from all children meeting the 3 criteria at the same time[1].	NA
3	FY 2007-08	All children identified as CDEPP participants	Selected by propensity score matching from all children meeting the 3 criteria at the same time[1].	Selected by propensity score matching from all children identified as: • Non-First Steps; • Full-day 4K.
4	FY 2004-05 FY 2005-06 FY 2006-07 FY 2007-08	First Steps groups used for comparison samples: • First Steps full-day 4K only: all children identified as participants in full-day 4K funded by First Step, but not participants in any other First Steps programs; • First Steps full-day 4K + PAT/Literacy: all children identified as participants in both full-day 4K and First Steps parenting or family literacy programs; • First Steps half-day 4K + PAT/Literacy: all children identified as participants in both half-day 4K and First Steps parenting or family literacy programs.		

[1]Three criteria were: 1) Not identified as First Steps participant; 2) Not identified as 4K participant; and 3) Not reported by parents as participants of 4K, Head Start, or private preschool program at entry of kindergarten

Outcome Measures

Four major outcomes were used in this evaluation:

The South Carolina Readiness Assessment (SCRA)

The South Carolina Readiness Assessment (SCRA), a teacher rated assessment for students' development in social, language and math skills used at kindergarten and 1st grade in South Carolina. As the instrument does not provide its subscale scores, 4 factor scores were generated based on exploratory factor analyses. Two factors were extracted from the social scale (identified as social skills and approaches to learning based on the content of items); and one factor each from the language and

math scales. The results of factor analyses were very consistent across grade (K and G1) and 5 FYs, with variance explained between 60 – 65% for social scale; 63 – 68% for language, and 68 – 71% for math scale. Since the original instrument was criterion-referenced, with only 3 levels (not yet, in process, and proficient), each of the 4 factor scores was then categorized into 3 ordinal levels: top 40-55 percentile level (perfect or nearly perfect score), lowest 10 percentile level, and the intermediate level.

Grade retention

Retention status was generated from the students' grade status by year. In 1st grade retention starts to be applicable (as children are first retained in kindergarten). Supplementary analyses suggested that retained students were more likely to be missing in data in the subsequent years and few were able to get back to the grade of their non-retained peers. To reduce selection bias which might be caused by excluding students with missing data in later grades, a decision was made that the any students retained at a certain grade continued to be defined as retained in subsequent years. As a result, grade retention at a certain grade is in fact an indicator for whether or not a student has ever been retained up to and including that grade.

Special Needs Placement

Among 6 types of special need placement identified by the DOE database, 4 of them (autism, and mental, emotional and physical impairments) are determined largely by students' preexisting health conditions. Supplementary analyses with FY 2003-04, and FY 2004-05 data indicated that percentages of these 4 types of special need placement were low and remained stable from kindergarten through 4th grade. However, this was not found to be the case with speech impairment and learning disabilities, which had much higher percentage at a certain time during the 4-5 years, and changed significantly with advancement of grade. These findings suggested that speech impairment and learning disabilities are prone to change from environment. Therefore, the decision was made that identified speech impairment and learning disability were used as outcome measures, while the other 4 types of special need placement were used as variables to represent children's background differences.

The Palmetto Achievement Challenge Tests (PACT)

The Palmetto Achievement Challenge Test (PACT) was the South Carolina standardized measurement of student achievement until the spring of 2008. It assessed students in four core academic areas, English language arts (ELA), mathematics, science, and social studies. The PACT items were aligned to the South Carolina curriculum standards developed for each discipline. Test results were reported as total scale scores and performance levels for each of the four subjects: advanced (exceeding expectations); proficient (meeting expectations); basic (meeting minimum expectations); and below basic: (did not meet minimum expectations). The first administration of the PACT was in 3rd grade. However, as PACT science and social studies were only administered to half of 3rd graders, we only used language and math score in 3rd grade PACT evaluation.

Table 51 presents an overall picture for the applicability of the five measures by grade and FY.

Table 51. Outcome Measure by Grade and Fiscal Year

	Fiscal Year				
Outcome Measures/Applicable Grade	2003-04	2004-05	2005-06	2006-07	2007-08
SCRA					
Kindergarten	x	x	x	x	x
1st Grade	x	x	x	x	
Grade retention					
1st grade	x	x	x	x	x
2nd grade	x	x	x		
3rd grade	x	x			
4th grade	x				
Speech impairment					
Kindergarten	x	x	x	x	x
1st grade	x	x	x	x	
2nd grade	x	x	x		
3rd grade	x	x			
4th grade	x				
Learning Disability					
Kindergarten	x	x	x	x	x
1st grade	x	x	x	x	
2nd grade	x	x	x		
3rd grade	x	x			
4th grade	x				
PACT					
3rd grade [1]	x	x			
4th grade[2]	x				

[1]Results used: English Language Arts, Math

[2]Results used: English Language Arts, Math, Science, Social Studies

Statistical Approach

The overall approach used to evaluate First Steps short- and long-term effects was to compare students who participated in the First Steps programs with those who did not (research questions 1-3), or First Steps students served by different combined strategies (research question 4) on the 5 school outcomes identified.

The key issue in achieving a fair comparison was to control for differences that originated from sources other than the First Steps program specifically, differences in students' background and differences in the school districts that the students attended. Eleven variables (covariates) available from all sources of data were used to represent students' differences in demographics and social economic status, including age at kindergarten entry, gender, ethnicity (white or not), special need placement at kindergarten (# of types of diagnosed needs among autism and cognitive, emotional and physical impairments), low birth weight, mother educational level, free/reduced lunch received at kindergarten, and status in food stamps, Medicaid, TANF, and foster care in the year prior to kindergarten entry. As previously discussed propensity score matching in selecting the non-First Steps groups adjusted for differences in students' background to the extent of the 11 covariates and their interaction and quadratic effects.

Thus, for the comparison between the First Steps and its matched non-First Steps group, hierarchical linear modeling (HLM) was employed only to adjust for the differences in school districts, since HLM can partition the variance in outcomes into student and school district levels. For comparison among First Steps children served by different combined strategies, where no propensity score matching was conducted in sampling, HLM was used to adjust for differences at school district level and any differences at student level by including the 11 covariates in modeling.

Because of differences in types of data for the 5 outcome measures, two regression models under HLM were employed, logistic regression modeling for binary outcomes (grade retention, speech impairment and learning disability), and regression modeling for ordinal level outcomes (SCRA and PACT). As 3 or more years of data were available for the earliest two FYs (2003-04, 2004-05) for grade retention, speech impairment and learning disability, growth rates were able to be estimated, which provides an overall trend of change in these outcomes with the students' advancement of grade. In

accordance with analyses for growth rates, 3-level HLM modeling was conducted. Level 1 modeled the outcome as a function of grade. Level 2 modeled the initial status and growth rate as a function of whether or not the student participated in a First Steps program (for groups matched by propensity score), or as function of the types of combined strategies the student participated in and 11 covariates (for FS children with different combined strategies). Level 3 set free the variations in the initial status and growth rate. In all the other circumstances with only two or fewer years of data (SCRA and PACT levels for all the 5 FYs, and all the 5 measures for the 3 later FYs) where growth rates were not be able to estimated, 2-level HLM was used instead.

First Steps 4K versus Matched First Steps Non-4K

Analysis examined the impact of attending First Steps 4K (typically in a public school classroom) on SCRA levels in kindergarten and 1st grade, grade retention, learning disability, and PACT scores for students in 3rd and 4th grade compared to a matched group of First Steps children who did not attend any 4K.

Table 52 presents the estimated percentages and odds ratios on SCRA levels in kindergarten and 1st grade by fiscal year. Odds ratio presented in the table compare the odds of scoring on a higher level for the First Steps 4K to the odds for the matched non-4K children. Odds ratio greater than 1 indicates First Steps 4K children are more likely to score on a higher level, while odds ratio less than 1 indicates First Steps 4K children are less likely to score on a higher level. As seen in the table, there were no significant differences between First Steps 4K and non-4K children until FY 2005-06, where First Steps 4K children were significantly less likely to score on a higher level in 1st grade math (0.84, $p < .05$). For FY 2006-07, First Steps 4K children scored significantly or had a trend of scoring lower on 3 of the 4 scales in kindergarten (.84 for social, .88 for language, and .86 for math). This less likelihood of scoring on a higher level stayed the same in 1st grade for language and math for First Steps 4K, compared to non-4K children. For FY 2007-08, there were no significant differences between the two groups on the 3 scales. However, First Steps 4K children were significantly more likely (1.16, $p < .05$) to score on a higher level for kindergarten math, compared to the First Steps non-4K children.

Table 52. First Steps 4K versus Matched First Steps Non-4K: Estimated Percentages and Odds Ratios on SCRA in Kindergarten and 1st Grade by Fiscal Year

	Fiscal Year																	
	2003-04				2004-05				2005-06				2006-07				2007-08	
	K		1		K		1		K		1		K		1		K	
Scale/Ranking	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K	FS 4K	No 4K
Social																		
Lowest 10%	10.79	11.14	11.16	11.23	10.68	10.95	10.68	10.53	11.44	11.31	12.16	11.35	11.86	10.13	12.86	12.23	11.90	12.24
Between 10%	28.96	29.47	27.99	27.90	27.48	27.88	29.58	29.37	31.24	31.06	30.00	28.92	29.38	26.89	27.43	26.68	26.76	27.19
Perfect 10%	60.25	59.39	60.95	60.78	61.84	61.17	59.74	60.10	57.32	57.63	57.83	59.74	58.76	62.97	59.71	61.09	61.34	60.57
Odds Ratio	1.04		1.01		1.03		0.99		0.99		0.92		0.84*		0.94		1.03	
Approaches to Learning																		
Lowest 10%	11.34	11.32	11.83	11.34	10.11	11.15	11.98	11.27	13.69	13.05	13.54	12.52	12.50	11.83	13.03	12.47	12.83	12.55
Between 10%	39.16	39.13	39.18	38.48	39.33	41.04	40.62	39.61	41.22	40.49	38.73	37.50	41.19	40.31	38.80	38.09	38.09	37.74
Perfect 10%	49.51	49.55	48.99	50.18	50.56	47.81	47.41	49.12	45.08	46.45	47.74	49.98	46.31	47.86	48.17	49.45	49.08	49.71
Odds Ratio	1.00		0.95		1.12		0.93		0.95		0.91		0.94		0.95		0.98	
Language																		
Lowest 10%	11.48	11.83	12.22	11.29	11.76	12.76	12.34	11.27	13.06	12.95	14.28	12.75	13.40	12.03	14.03	12.02	13.12	13.45
Between 10%	44.97	45.46	47.25	46.00	42.88	44.17	48.02	46.61	45.80	45.67	44.91	43.24	45.92	44.28	47.51	45.23	42.82	43.19
Perfect 10%	43.55	42.70	40.54	42.72	45.36	43.08	39.64	42.13	41.14	41.38	40.82	44.01	40.68	43.70	38.45	42.75	44.06	43.36
Odds Ratio	1.04		0.91		1.10		0.90		0.99		0.88		0.88†		0.84*		1.03	
Math																		
Lowest 10%	11.74	11.97	12.06	11.16	11.96	11.78	11.95	11.89	13.53	13.41	14.83	12.82	13.66	11.95	13.43	11.97	12.14	13.86
Between 10%	46.86	47.16	42.75	41.48	47.57	47.34	41.93	41.85	47.69	47.56	40.76	38.57	46.24	44.22	40.82	38.99	41.57	43.60
Perfect 10%	41.40	40.87	45.19	47.36	40.47	40.88	46.12	46.26	38.77	39.03	44.41	48.61	40.11	43.83	45.75	49.40	46.29	42.54
Odds Ratio	1.02		0.92		0.98		0.99		0.99		0.84*		0.86*		0.88†		1.16*	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 53 presents estimated percentages of grade retention and odds ratios by grade and fiscal year. Compared to the matched non-4K children, First Steps children who attended 4K had no significant difference in retention in 1st grade for any FY, as shown by odds ratio in the corresponding row (for a specific grade, odds ratio greater than 1 indicates a greater likelihood being retained at that grade for the First Steps 4K; less than 1, a lesser likelihood being retained for the First Steps 4K).

Comparison between First Steps 4K and non-4K beyond 1st grade was conducted using gain per year for the two earliest FYs (2003-04 and 2004-05) (gain greater than 1 indicates an increase with grade, and less than 1, a decrease) because data was available for more than two years. For FY 2003-04, retention for both First Steps 4K and non-4K increased significantly with advancement of grade. Gain per year is 1.50 for First Steps 4K, and 1.39 for non-4K, meaning the odds of being retained for First Steps 4K increased on average by 50% every year, compared to 39% for non-4K. The odds ratio of the gains (1.08, $p < .01$) showed that grade retention for First Steps 4K increased at a significantly faster rate than the First Steps non-4K up to the 4th grade. This difference in gains was not replicated in FY 2004-05, where both groups increased significantly in retention from 1st to 3rd grade (1.62 vs.1.60, both $p < .01$), but the two groups' gains are not significantly different (1.01, $p > .05$). For the remaining FYs, data beyond 1st grade were only available for FY 2005-06. No gain per year can be estimated. The odds ratio at 2nd grade for the FY only shows that the two groups were not significantly different in their retention rate in 2nd grade.

Table 53. First Steps 4K versus Matched First Steps Non-4K: Odds Ratio of Grade Retention by Fiscal Year

		Estimated % of Grade		Odds Ratio
Fiscal Year	Grade	First Steps 4K	Matched Non-4K	First Steps 4K versus Non-4K
2003-04	1	8.78	9.70	.90
	2	12.62	13.01	—
	3	17.80	17.23	—
	4	24.52	22.47	—
	Gains Per Year	1.50**	1.39**	1.08**
2004-05	1	8.78	7.74	1.15
	2	13.49	11.87	—
	3	20.17	17.77	—
	Gains Per Year	1.62**	1.60**	1.01
2005-06	1	6.99	7.43	0.94
	2	16.63	15.50	1.09
2006-07	1	7.05	6.18	1.15
2007-08	1	6.03	7.17	.83

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 54 presents estimated percentages of diagnosed speech impairment and odds ratio by grade and fiscal year. Compared to the matched non-4K children, the odds of being diagnosed as speech impaired at kindergarten for First Steps 4K children were significantly higher, approximately 1.6 to 2.2 times as much as that of their counterparts across the 5 FYs. Over 20% of First Steps children were diagnosed as speech impaired for 4 of 5 FYs, compared to 10-15% for their counterparts.

The high percentage of speech impairment at kindergarten for First Steps 4K children decreased significantly with advancement of grade. For FY 2003-04, the gains per year was .80 for First Steps 4K, indicating the odds of being diagnosed as speech impaired decreased on average by 20% every year up to 4th grade. This was a significantly faster decrease rate than 11% for the First Steps non-4K children (odds ratio of the gains = .89, $p < .01$). As a result, the estimated percentage of speech impairment by 4th grade for First Steps 4K was almost equal to that for the matched non-4K (10.88% vs. 10.52%). For FY 2004-05, the odds of speech impairment for First Steps 4K children decreased yearly by 15% from kindergarten to 3rd grade (.85, $p < .01$), whereas the decrease rate for non-4K was only an insignificant

2% in odds (.98, p > .05). With a significantly faster decrease rate for First Steps 4K, (odds ratio of the gains = .87, p < .01), the large gap between the two groups at kindergarten (22.88% vs. 12.67%) was closed to a much smaller extent by the 3rd grade (15.23% vs. 11.94%). This faster decreasing trend for First Steps 4K children can also been found in later FYs with data beyond kindergarten. For example, in FY 2005-06, although First Steps 4K children were still significantly more likely to be diagnosed as speech impaired in 1st (1.71, p <.01) and 2nd grade (1.50, p < .01), the odds ratio between the two groups dropped from 2.23 at kindergarten to 1.50 by 2nd grade, and the difference of 22.46% vs. 11.51% at kindergarten was reduced to 17.17% vs. 12.16% by 2nd grade.

Table 54. First Steps 4K versus Matched Non-4K: Odds Ratios of Speech Impairment

		Speech Impairment		
		Estimated % of Speech		Odds Ratio
Fiscal Year	Grade	First Steps 4K	Matched Non-4K	FS 4K vs. Non-4K
2003-04	K	22.58	15.50	1.59**
	1	19.00	14.10	—
	2	15.88	12.81	—
	3	13.18	11.62	—
	4	10.88	10.53	—
	Gains Per Year	0.80**	.89**	.90**
2004-05	K	22.88	12.67	2.05**
	1	20.06	12.42	—
	2	17.51	12.18	—
	3	15.23	11.94	—
	Gains Per Year	.85**	.98	.87**
2005-06	K	22.46	11.51	2.23**
	1	21.43	13.73	1.71**
	2	17.17	12.16	1.50**
2006-07	K	20.32	12.63	1.77**
	1	18.71	14.16	1.40**
2007-08	K	16.66	8.52	2.15**

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 55 presents estimated percentages of diagnosed learning disabilities and odds ratio by grade and fiscal year. As shown in the table, learning disability had a very low incidence in kindergarten

in general (0.5 - 2%). The findings for kindergarten were mixed: in 2 of 5 FYs, no significant differences were found between First Steps 4K and non-4K children, whereas in the other 3 FYs, First Steps 4K children were significantly more likely to be diagnosed learning disabled than their counterparts.

For the two earlier FYs where gain per year was available, diagnosis of learning disability increased significantly with advancement of grade for both First Steps 4K and non-4K children. By 4th grade for FY 2003-04, the percentages were over 10% for both groups. The rates of increase for First Steps 4K were not significantly different from that for First Steps non-4K (1.67 vs. 1.71, odds ratio = .98, $p>.05$). For FY 2004-05, increase per year for First Steps 4K is significantly slower than that of non-4K (1.75 vs. 2.17, odds ratio = .80, $p>.05$).

For the 4 FYs with data beyond kindergarten, analysis indicated that for FYs 2003-04 and 2005-06, where no difference was found in kindergarten between First Steps 4K and non-4K, the difference in learning disability diagnosis between the two groups remained insignificant with advancement of grade. For FYs 2004-05 and 2006-07, where First Steps 4K children were significantly more likely to be diagnosed as learning disabled in kindergarten, the gap between the two groups tended to close with the advancement of grade. This was indicated by a significantly slower increase rate for First Steps 4K for FY 2004-05 and a lowering odds ratio with advancement of grade for FY 2006-07.

Table 55. First Steps 4K versus Matched First Steps Non-4K: Odds Ratios of Learning Disability

		Learning Disability		
		Estimated % of Learning Disability		Odds Ratio
Fiscal Year	Grade	First Steps 4K	Matched Non-4K	First Steps 4K vs. Non-4K
2003-04	K	1.74	1.47	1.18
	1	2.87	2.48	
	2	4.71	4.17	
	3	7.64	6.92	
	4	12.16	11.27	
	Gains Per Year	1.67**	1.71**	.98
2004-05	K	1.90	.78	2.46**
	1	3.27	1.68	
	2	5.57	3.59	
	3	9.34	7.48	
	Gains Per Year	1.75**	2.17**	.80**
2005-06	K	.97	.57	1.70
	1	3.61	2.74	1.33
	2	5.73	4.31	1.35
2006-07	K	1.02	.39	2.60**
	1	3.23	1.74	1.89**
2007-08	K	2.10	0.57	3.71**

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

The Palmetto Achievement Challenge Tests (PACT) scores were available for FY 2003-04 for 3rd and 4th grade and for 3rd grade for FY 2004-05. The following 3 tables present the PACT mean scores, percentages by performance level, and odds ratio between the First Steps 4K and matched non-4K (odds ratio greater than 1 indicates a greater likelihood of being in a higher performance level for the First Steps 4K, odds ratio smaller than 1, a lesser likelihood of being in a higher performance level for the First Steps 4K).

Tables 56 and 57 present the findings for non-retained students for FY 2003-04, and FY 2004-05 correspondingly. As indicated by the odds ratios, there were no significant differences between First Steps 4K and matched non-4K students for both FYs, with the exception of 4th grade science for FY

2003-04: First Steps 4K students were significantly less likely to perform on a higher level than matched First Steps non-4K students.

Table 56. Fiscal Year 2003-04 First Steps 4K versus Matched First Steps Non-4K: PACT Mean and Percentage for Non-Retained 3rd and 4th Grade

	2003-2004											
	3rd Grade PACT				4th grade PACT							
	Math		ELA		Math		ELA		Science		Social Studies	
PACT	FS 4K	Non-4K	FS 4K	Non-4K	FS 4K	Non-4K	FS 4K	Non-4K	FS 4K	Non-4K	FS 4K	Non-4K
Overall Mean	306.93	307.23	309.03	309.43	409.17	409.85	404.49	405.21	403.06	404.60	405.38	406.34
% Below Basic	23.89	22.76	14.38	14.18	23.71	21.85	21.20	19.70	34.00	30.33	25.99	24.36
% Basic	51.73	51.68	36.14	35.93	42.19	41.64	42.24	41.58	37.02	37.11	42.98	42.72
% Proficient	17.38	18.15	44.66	45.01	20.50	21.62	34.50	36.47	16.39	18.00	17.71	18.56
% Advanced	6.99	7.42	4.81	4.89	13.60	14.89	2.06	2.25	12.59	14.56	13.33	14.36
Odds Ratio FS 4K vs.	0.94		0.98		.91		.90		.85*		.92	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 57. Fiscal Year 2004-05 First Steps 4K versus Matched First Steps Non-4K: PACT Mean and Percentage for Non-Retained 3rd Grade

	2004-2005			
	3rd grade PACT			
	Math		ELA	
PACT	FS 4K	Non-4K	FS 4K	Non-4K
Overall Mean	306.21	307.24	308.75	309.79
% Below Basic	26.12	23.94	15.95	15.29
% Basic	48.38	48.29	35.95	35.36
% Proficient	14.99	16.12	42.03	42.98
% Advanced	10.50	11.65	6.08	6.37
Odds Ratio FS 4K vs. Non-4K	.89		.95	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 58 resents the finding for the retained 3rd graders (only available for FY 2003-04). There were no significant differences between First Steps 4K and non-4K retained students.

Table 58. First Steps 4K versus Matched Non-4K: PACT Mean and Percentage for Retained 3rd Grade

	2003-2004			
	Math		Math	
PACT	FS 4K	FS Non-4K	FS 4K	FS Non-4K
Overall Mean	295.68	296.75	297.88	298.62
% Below Basic	55.80	52.09	44.05	39.46
% Basic	38.25	41.07	41.10	43.14
% Proficient	4.39	5.03	14.50	16.98
% Advanced	1.56	1.81	0.34	.42
Odds Ratio FS 4K vs. Non-4K	0.86		0.83	

Summary

Findings indicate that compared to matched non-4K children, First Steps children who attended 4K were, in general, not significantly different in 3 outcomes: grade retention up to 4th grade; SCRA level at kindergarten and 1st grade (except for 1 FY with a general lower levels in language and math); and PACT scores at 3rd and 4th grade. Compared to matched First Steps non-4K children, First Steps 4K children were much more likely to be diagnosed as special needs in kindergarten and, particularly, as speech impaired. Speech impairment however decreased with advancement of grade and First Steps 4K tended to close the gap with their counterparts by 4th grade.

First Steps Non-4K versus Matched Non-First Steps Without 4K

Analysis examined the impact of First Steps participation without 4K on SCRA levels in kindergarten and 1st grade, grade retention, learning disability, and PACT scores for students in 3rd and 4th grade compared to a matched sample of non-First Steps non-4k participants..

Table 59 presents the estimated percentages and odds ratios on SCRA levels in kindergarten and 1st grade by fiscal year. Odds ratio presented in the table compare the odds of scoring on a higher level for First Steps non-4K to the odds for matched non-First Steps non-4K children. Odds ratio greater than 1 indicates First Steps 4K children are more likely to score on a higher level, while odds ratio less than 1 indicates First Steps 4K children are less likely to score on a higher level.

As seen in the table, there were no significant differences between First Steps non-4K and matched non-First Steps non-4K children until FY 2006-07, where First Steps non-4K children were significantly less likely to score on a higher level in kindergarten on social (0.76, $p < .01$) and in 1st grade on approaches to learning (0.82, $p<.05$). For FY 2007-08, First Steps non-4K children scored significantly higher on math in kindergarten (1.26, <.05).

Table 59. First Steps Non-4K versus Matched Non-First Steps Without 4K: Estimated Percentages and Odds Ratios on SCRA in Kindergarten and 1st Grade by Fiscal Year

	2003-2004				2004-2005				2005-2006				2006-2007				2007-2008	
	K		1		K		1		K		1		K		1		K	
	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K	FS No 4K	Non FS/4K
Social																		
Lowest 10%	14.79	15.35	13.53	16.79	12.54	11.79	14.26	12.10	11.21	12.71	12.24	12.96	11.44	8.90	13.39	12.31	12.50	12.22
Between 10%	37.83	38.36	29.33	32.38	27.43	26.51	35.83	32.28	30.83	32.84	28.55	29.41	29.49	25.48	27.27	26.06	28.05	27.71
Perfect 10%	47.38	46.29	57.14	50.83	60.03	61.69	49.90	54.62	57.96	54.44	59.21	57.64	59.07	65.62	59.34	61.63	59.45	60.07
Odds Ratio FS	1.04		1.29		0.93		0.83		1.15		1.07		0.76**		0.91		0.97	
Approaches to Learning																		
Lowest 10%	13.19	13.86	13.78	13.47	11.57	11.65	12.98	11.34	13.04	12.91	11.75	11.76	11.78	10.79	12.50	10.45	12.29	12.69
Between 10%	45.38	46.09	38.71	38.36	42.48	42.58	41.23	39.03	40.75	40.59	38.47	38.48	37.85	36.37	38.68	35.68	38.63	39.13
Perfect 10%	41.43	40.06	47.52	48.18	45.96	45.77	45.79	49.63	46.20	46.50	49.78	49.76	50.38	52.84	48.81	53.87	49.08	48.18
Odds Ratio FS	1.06		0.97		1.01		0.86		0.99		1.00		0.91		0.82*		1.04	
Language																		
Lowest 10%	14.88	16.36	13.00	14.14	13.42	13.81	13.78	11.97	14.02	14.75	13.70	13.88	12.50	11.99	12.94	11.81	13.11	14.78
Between 10%	50.70	51.71	49.53	50.63	45.91	46.31	50.09	48.09	44.04	44.75	44.16	44.35	42.35	41.68	43.69	42.25	41.14	42.90
Perfect 10%	34.42	31.93	37.47	35.23	40.68	39.88	36.12	39.94	41.94	40.51	42.15	41.77	45.15	46.33	43.37	45.94	45.74	42.32
Odds Ratio FS	1.12		1.10		1.03		0.85		1.06		1.02		0.95		0.90		1.15†	
Math																		
Lowest 10%	15.80	15.48	12.94	12.96	11.16	11.95	15.30	12.72	13.17	14.31	14.08	14.16	11.67	11.07	13.08	11.91	11.75	14.38
Between 10%	51.46	51.25	46.37	46.40	51.55	52.55	46.61	44.01	46.78	47.93	37.97	38.06	41.63	40.74	38.44	36.93	42.36	45.41
Perfect 10%	32.74	33.27	40.70	40.64	37.29	35.50	38.09	43.28	40.06	37.76	47.95	47.78	46.70	48.19	48.48	51.16	45.88	40.21
Odds Ratio FS	0.98		1.00		1.08		0.81		1.10		1.01		0.94		0.90		1.26*	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

As indicated in Table 60 compared to matched non-First Steps non-4K children, First Steps non-4K children had no significant differences in retention in 1st grade for any FY, as shown by odds ratio in the corresponding row (for a specific grade, odds ratio greater than 1 indicates a greater likelihood being retained at that grade for the First Steps 4K; less than 1, a lesser likelihood being retained for the First Steps 4K).

Comparison between First Steps non-4K and matched non-First Steps non-4K beyond 1st grade were conducted using gain per year for the two earliest FYs (2003-04 and 2004-05) (gain greater than 1 indicates an increase with grade, and less than 1, a decrease). For FYs 2003-04 and 2004-05, retention for both First Steps non-4K and the matched non-4K increased significantly with advancement of grade. For FY 2003-04 gain per year was 1.39 for First Steps non-4K, and 1.46 for matched non-4K, meaning the odds of being retained for First Steps non-4K increased on average by 39% every year, compared to 46% for matched children. For FY 2004-05 gain per year was 1.69 for First Steps non-4K and 1.46 for the matched sample. The odds ratio of the gains (1.16, $p<.05$) indicated that grade retention for First Steps non-4K children increased at a significantly faster rate. For the remaining FYs, data beyond 1st grade was only available for FY 2005-06 therefore no gain per year can be estimated. The odds ratio at 2nd grade for the FY only showed that the two groups were not significantly different in their retention rate in 2nd grade.

Table 60. First Steps Without 4K versus Matched Non-First Steps Without 4K: Odds Ratio of Grade Retention by Fiscal Year

		Estimated % of Grade Retention		Odds Ratio
Fiscal Year	Grade	FS Non-4K	Non-FS Non-4K	FS Non-4K vs. Matched Non-FS Non-4K
2003-04	1	11.15	11.90	0.93
	2	14.86	16.43	—
	3	19.54	22.27	—
	4	25.24	29.44	—
	Gains per year	1.39**	1.46**	0.95
2004-05	1	7.85	10.59	0.72†
	2	12.60	14.70	—
	3	19.60	20.06	—
	Gains per year	1.69**	1.46**	1.16*
2005-06	1	7.21	7.67	0.93
	2	17.15	15.71	1.11
2006-07	1	6.94	9.05	0.75†
2007-08	1	6.90	7.48	0.92

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 61 presents estimated percentages of diagnosed speech impairment and odds ratio by grade and fiscal year. Compared to the matched non-4K children, the odds of being diagnosed as speech impairment at kindergarten for First Steps non-4K children were not significantly different.

Only FY 2003-04 had a significant decrease in speech impairment with advancement of grade. There was a decrease per year in odds of .84 (an average 16% decrease per year of odds of speech impairment) for First Steps non-4K versus 11% for non-First Steps non-4K.

Table 61. First Steps Without 4K versus Matched Non-First Steps Without 4K: Odds Ratio of Speech Impairment

		Speech Impairment		
		Estimated % of Speech Impairment		Odds Ratio
Fiscal Year	Grade	FS Non-4K	Non-FS Non-4K	FS Non-4K vs. Matched Non-FS Non-4K
2003-04	K	18.04	13.14	1.45†
	1	15.60	11.82	
	2	13.43	10.62	
	3	11.53	9.52	
	4	9.86	8.53	
	Gains per year	0.84**	0.89**	0.95
2004-05	K	12.01	12.36	0.97
	1	11.88	12.97	
	2	11.74	13.59	
	3	11.61	14.25	
	Gains per year	0.99	1.06	0.94
2005-06	K	11.69	12.26	0.95
	1	13.73	14.42	0.94
	2	12.12	13.35	0.90
2006-07	K	13.35	11.78	1.15
	1	15.26	12.61	1.25†
2007-08	K	11.64	9.38	1.27†

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 62 presents estimated percentages of diagnosed learning disabilities and odds ratio by grade and fiscal year for First Steps non-4K and matched non-4K children. As shown in the table, in general, learning disability had a very low incidence in kindergarten (1 - 2%). In 3 of 5 FYs First Steps non-4K children were less likely to be diagnosed as learning disabled during FYs 2004-07 (reduced by 47%, 43% and 33% respectively although two are non-significant). For the earliest and last FYs First Steps children are more likely to be diagnosed, one is significant the other is not.

For the two earlier FYs where gain per year is available, the diagnosis of a learning disability increased significantly with advancement of grade for both First Steps non-4K and matched non-4K children. By 4th grade for FY 2003-04 the percentages were over 11% for both groups. The rates of

increase in FY 2003-04 for First Steps non-4K were significantly different from the matched non-4K. First Steps non-4K children had decreased odds ratios of learning disability compared to the matched non-First Steps (1.65 vs. 2.07, odds ratio = .80, p<.05). For FY 2004-05, increase per year for First Steps non-4K was significantly slower than that of the matched non-4K (2.25 vs. 1.84, odds ratio = 1.22, p<.05).

Of the 4 FYs with data beyond kindergarten, analysis indicated that for FYs 2005-06 and 2006-07 no differences were found at kindergarten between First Steps non-4K and matched non-First Steps non-4K. The difference in learning disability between the two groups remained insignificant with advancement of grade with the exception of 1st grade for FY 2005-06 where First Steps non-4K had significantly decreased odds of a learning disability diagnosis (0.50, p<.05).

Table 62. First Steps Without 4K versus Matched Non-First Steps Without 4K: Odds Ratio of Learning Disability

		Learning Disability		
		Estimated % of Learning Disability		Odds Ratio
Fiscal Year	Grade	FS Non-4K	Matched Non-FS Non-4K	FS Non-4K vs. Matched Non-FS Non-4K
2003-04	K	2.31	0.69	3.38**
	1	3.74	1.42	
	2	6.02	2.89	
	3	9.55	5.79	
	4	14.82	11.26	
	Gain Per Year	1.65**	2.07**	0.80*
2004-05	K	0.86	1.58	0.54*
	1	1.90	2.86	
	2	4.19	5.14	
	3	8.95	9.07	
	Gain Per Year	2.25**	1.84**	1.22*
2005-06	K	0.13	0.22	0.57
	1	1.28	2.53	0.50*
	2	3.01	5.13	0.57†
2006-07	K	0.50	0.76	0.66
	1	1.57	1.87	0.84
2007-08	K	0.62	0.48	1.28

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

PACT scores were available for FY 2003-04 for 3rd and 4th grade and for 3rd grade for FY 2004-05. The following 3 tables present the PACT mean scores, percentages by performance level, and odds ratio between the First Steps 4K and matched non-4K (odds ratio greater than 1 indicates a greater likelihood of being in a higher performance level for the First Steps 4K, odds ratio smaller than 1, a lesser likelihood of being in a higher performance level for the First Steps 4K).

Tables 63 and 64 present findings for the non-retained students for FYs 2003-04 and 2004-05. As indicated by the odds ratios, there were no significant differences between First Steps non-4K and matched non-First Steps non-4K students for both FYs.

Table 63. Fiscal Year 2003-04 First Steps Without 4K versus Matched Non-First Steps Non-4K: PACT Mean and Percentage for Non-Retained 3rd and 4th Grade

	2003-04											
	3rd Grade PACT				4th grade PACT							
	Math		ELA		Math		ELA		Math		ELA	
PACT	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K
Overall Mean	306.15	305.93	307.37	307.10	407.40	407.83	403.10	403.07	398.2	401.21	402.11	403.19
% Below Basic	28.86	26.74	20.15	18.72	25.49	26.36	22.67	22.88	46.2	38.36	29.50	30.12
% Basic	50.48	50.81	39.38	38.59	41.51	41.63	45.74	45.79	34.9	37.43	45.32	45.25
% Proficient	14.31	15.43	37.38	39.31	24.19	23.55	29.72	29.49	11.6	14.64	15.19	14.90
% Advanced	6.36	7.01	3.09	3.37	8.81	8.45	1.87	1.85	7.1	9.57	10.00	9.73
Odds Ratio FS Non-4K vs. Matched Non- 4K	.90		.91		1.05		1.01		.72		1.03	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 64. Fiscal Year 2003-04 First Steps Non- 4K versus Matched Non-First Steps Non- 4K: PACT Mean and Percentage for Non-Retained 3rd Grade

	2004-05			
	3rd grade PACT			
	Math		ELA	
PACT	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K
Overall Mean	305.59	305.05	309.19	308.47
% Below Basic	28.45	33.18	17.43	19.55
% Basic	45.90	45.17	36.28	37.64
% Proficient	13.28	11.49	39.41	36.78
% Advanced	12.37	10.16	6.88	6.03
Odds Ratio FS Non-4K vs. Matched Non-4K	1.25		1.15	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 65 presents the findings for retained 3rd graders (only available for FY 2003-04). There were no significant differences between First Steps non-4K and matched students.

Table 65. Fiscal Year 2004-05 First Steps Non-4K versus Matched Non-First Steps Non-4K: PACT Mean and Percentage for Retained 3rd Grade

	2003-04			
	3rd grade PACT			
	Math		ELA	
PACT	FS Non-4K	Non FS Non-4K	FS Non-4K	Non FS Non-4K
Overall Mean	290.59	294.63	294.21	298.34
% Below Basic	79.46	63.08	55.41	43.29
% Basic	18.17	31.7	31.50	37.02
% Proficient	1.44	3.13	13.09	19.69
% Advanced	0.93	2.09	0	0
Odds Ratio FS Non-4K vs. Matched Non-4K	0.44		0.61	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Summary

Findings for First Steps non-4K versus matched non-First Steps non-4K indicated that compared to the matched non-4K children, First Steps non-4K children were, in general, not significantly different in grade retention up to 4th grade, SCRA levels in kindergarten and 1st grade, PACT scores at 3rd and 4th grade and speech impairment. Compared to the matched non-First Steps non-4K children, First Steps non-4K children trended toward being less likely to be diagnosed as learning disabled in kindergarten.

First Steps Child Development Education in Private Settings (CDEPP) Outcomes

As a relatively new First Steps strategy child outcome data for Child Development Education in Private Settings (CDEPP) at the school level is limited to the 2007-08 school-year. As with all analyses First Steps participation occurs in the years prior to kindergarten entry. In the case of CDEPP participation occurred in the year prior to kindergarten (2006-07). Analysis examined the impact of attending a private First Steps CDEPP site on SCRA levels in kindergarten, grade retention, speech impairment and learning disability diagnosis compared to non-First Steps full-day 4K and non-First Steps non-4K children.

Sample

Addressing the CDEPP evaluation question required the selection of corresponding samples of First Steps and matched non-First Steps children for comparison. Three groups of children were selected for comparison: CDEPP participants (as the First Steps group to be evaluated) and two matched non-First Steps groups. Of these two matched samples, one sample consisted of non-First Steps non-4K children and the second of non-First Steps 4K children participating in full-day 4K programs. CDEPP analysis utilized only FY 2007-08. As the evaluation is not a random-assignment design, propensity score matching was employed in the selection of all matched non-First Steps groups in order to achieve equivalency in the samples' demographic and socio-economic status (SES). Eleven demographic and socio-economic variables were included in propensity score matching. A complete description of the variables is in the Statistical Approach section which follows. The matched non-First Steps comparison sample groups were found to be equivalent to their corresponding First Steps groups on all the 11 variables included (Appendix D) with no significant differences found in any of the pairings. It is only in the CDEPP program, a relatively recent First Steps initiative that First Steps children who received 4K are clearly in a controlled First Steps 4K environment. As a new strategy with only one year of school-age data, all judgments regarding the long-term impact of CDEPP should be made with caution. The definitions of the sample groups are highlighted in Table 66.

Table 66. Sample Definition by Fiscal Year

	Sample		
Fiscal Year	First Steps	Non-First Steps Non-	Non-First Steps with 4K
FY 2007-08	All children identified as First Steps private CDEPP participants	Selected by propensity score matching from all children meeting the 3 criteria at the same time[1].	Selected by propensity score matching from all children identified as: Non-First Steps non-4K; Non First Steps full-day 4K.

[1]Three criteria were: 1) Not identified as First Steps participant; 2) Not identified as 4K participant; and 3) Not reported by parents as participants of 4K, Head Start, or private preschool program at entry of kindergarten

Outcome Measures

Four major outcomes were used in this analysis, the South Carolina Readiness Assessment (SCRA), retention status generated from the students' grade status by year, and special needs placement (speech impairment and/or learning disability diagnosis). Complete descriptions of these measures are available on pages 93 – 95 and the applicability of measures by grade and FY are highlighted in Table 50.

Statistical Approach

The overall approach used to evaluate First Steps short- and long-term effects was to compare students who participated in CDEPP with those who did not on the 4 school outcomes available for this singular year of data.

The key issue in achieving a fair comparison was to control for differences that originated from sources other than the First Steps program specifically, differences in students' background and differences in the school districts that the students attended. Eleven variables (covariates) available from all sources of data were used to represent students' differences in demographics and social economic status, including age at kindergarten entry, gender, ethnicity (white or not), special need placement at kindergarten (# of types of diagnosed needs among autism and cognitive, emotional and physical impairments), low birth weight, mother educational level, free/reduced lunch received at kindergarten, and status in food stamps, Medicaid, TANF, and foster care in the year prior to

kindergarten entry. As previously discussed propensity score matching in selecting the non-First Steps groups adjusted for differences in students' background to the extent of the 11 covariates and their interaction and quadratic effects.

Thus, for the comparison between the First Steps and its matched non-First Steps groups, hierarchical linear modeling (HLM) was employed only to adjust for the differences in school districts, since HLM can partition the variance in outcomes into student and school district levels. Because of differences in types of data for the 4 outcome measures, two regression models under HLM were employed, logistic regression modeling for binary outcomes (grade retention, speech impairment and learning disability), and regression modeling for ordinal level outcomes (SCRA). As only 1 year of data was available for grade retention, speech impairment and learning disability, growth rates were not able to be estimated (were more data available, an overall trend of change in these outcomes with the students' advancement of grade would be possible). In accordance with analyses for growth rates, 2-level HLM modeling was conducted. Level 1 modeled the outcome as a function of grade. Level 2 modeled the initial status and growth rate as a function of whether or not the student participated in a First Steps program (for groups matched by propensity score) and the 11 covariates (for FS children with different combined strategies).

As seen in Table 67 there were no significant differences between First Steps private CDEPP and full-day 4K and non-4K children on SCRA.

Table 67. First Steps Private CDEPP versus Matched Full-Day 4K and Non-4K: Estimated Percentages and Odds Ratios on SCRA Scales in Kindergarten Fiscal Year 2007-2008

	4K Type		
SCRA Scale/Ranking	CDEPP	Full-Day 4K	Non-4K
Social			
Lowest 10%	17.14	14.91	14.71
Between	30.36	28.48	28.29
Perfect	52.50	56.61	57.00
Odds Ratio	—	1.18	1.20
Approaches to Learning			
Lowest 10%	12.61	12.11	11.31
Between	38.81	38.15	37.03
Perfect	48.58	49.74	51.66
Odds Ratio	—	1.05	1.13
Language			
Lowest 10%	13.54	14.48	14.67
Between	41.28	42.26	42.45
Perfect	45.18	43.26	42.89
Odds Ratio	—	0.93	0.91
Math			
Lowest 10%	14.86	14.92	15.57
Between	40.43	40.48	41.08
Perfect	44.70	44.60	43.35
Odds Ratio	—	1.00	0.95

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 68 indicates that full-day 4K children when compared with First Steps private CDEPP children were more than twice as likely to be diagnosed with a speech impairment with an odds increase of 2.06 ($p < .05$). They were also three times more likely to have a learning disability (3.13, $p<.01$). The full-day 4K children had significantly lower odds of .33 ($p < .01$) of retention in Kindergarten when compared to private CDEPP children. There were no significant differences between non-4K children and the private CDEPP for retention, speech impairment and learning disability status.

Table 68. First Steps Private CDEPP versus Matched Full-Day 4K and Non-4K: Odds Ratios of Retention, Speech Impairment and Learning Disability

	Retention		Speech Impairment		Learning Disability	
	Odds Ratio	Estimated %	Odds Ratio	Estimated %	Odds Ratio	Estimated %
CDEPP		5.75		5.94		0.47
Full-Day 4K	0.33**	1.99	2.06*	11.54	3.13**	1.46
Non-4K	1.29	7.27	0.88	5.24	0.92	0.44

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Summary

Findings from comparisons between First Steps private CDEPP and matched full-day and non-4K children indicated CDEPP children were not significantly different in SCRA outcomes in kindergarten. CDEPP children compared to matched full-day 4K were less likely to be diagnosed with speech impairment or a learning disability but were more likely to be retained in kindergarten. There were no significant differences between non-4K and CDEPP children. As a new strategy with only one year of school-age data, all judgments regarding the long-term impact of CDEPP should be made with caution.

First Steps to School Readiness Combined Strategies Child Outcomes

Analysis examined the impact of participation in First Steps 4K combined with other First Steps strategies on SCRA levels in kindergarten and 1st grade, grade retention, learning disability, and PACT scores for students in 3rd and 4th grade. Combined strategies were compared with full-day 4K. For FYs 2004-05, and 2005-06 any findings are weakened by little knowledge of the quality, duration, and intensity of PAT implementation

Sample

To address the combined strategy evaluation question comparison groups consisted of First Steps children who participated in 4K programs only or 4K programs combined with either parenting or family literacy strategies. The sample for research question 4 does not contain FY 2003-04 due to its very limited number of First Steps children participating combined strategies. As the evaluation is not a random-assignment design, propensity score matching was employed in the selection of all matched non-First Steps groups in order to achieve equivalency in the samples' demographic and socio-economic status (SES). Eleven demographic and socio-economic variables were included in propensity score matching. The sample definition is highlighted in Table 69.

It is important to note the definition of a First Steps 4K child. A First Steps 4K child is any child who received any form of First Steps funding and attended 4K. It is only in the CDEPP program, a relatively recent First Steps initiative that First Steps children who received 4K are clearly in a controlled First Steps 4K environment. All other First Steps 4K children may be enrolled in non-First Steps 4K. As First Steps has no control over the educational environment in public school 4Ks, all outcomes should be interpreted with caution and with this caveat in mind.

Table 69. Combined Strategies Sample Definition by Fiscal Year

Fiscal Year	First Steps Groups Used for Comparison Samples
FY 2004-05 FY 2005-06 FY 2006-07 FY 2007-08	• First Steps full-day 4K only: all children identified as participants in full-day 4K funded by First Step, but not participants in any other First Steps programs; • First Steps full-day 4K + PAT/Literacy: all children identified as participants in both First Steps full-day 4K and First Steps parenting or family literacy programs; • First Steps half-day 4K + PAT/Literacy: all children identified as participants in both First Steps half-day 4K and First Steps parenting or family literacy programs.

Outcome Measures

Four major outcomes were used in this specific analysis, the South Carolina Readiness Assessment (SCRA), retention status generated from the students' grade status by year, and special needs placement as defined by speech impairment and /or a learning disability diagnosis. PACT scores were not used as there was no combined strategy First Steps participants identified in the available data. Complete descriptions of the measures are available on pages 95 – 97. For a complete picture of the applicability of measures by grade and FY, please refer to Table 50.

Statistical Approach

The overall approach used to evaluate First Steps short- and long-term effects was to compare First Steps students served by different combined strategies (research question 4) on the 5 school outcomes identified.

The key issue in achieving a fair comparison was to control for differences that originated from sources other than the First Steps program specifically, differences in students' background and differences in the school districts that the students attended. Eleven variables (covariates) available from all sources of data were used to represent students' differences in demographics and social economic status, including age at kindergarten entry, gender, ethnicity (white or not), special need placement at kindergarten (# of types of diagnosed needs among autism and cognitive, emotional and physical impairments), low birth weight, mother educational level, free/reduced lunch received at kindergarten, and status in food stamps, Medicaid, TANF, and foster care in the year prior to kindergarten entry. As previously discussed propensity score matching in selecting the non-First Steps

groups adjusted for differences in students' background to the extent of the 11 covariates and their interaction and quadratic effects.

Thus, for the comparison between the First Steps and its matched non-First Steps group, hierarchical linear modeling (HLM) was employed only to adjust for the differences in school districts, since HLM can partition the variance in outcomes into student and school district levels. For comparison among First Steps children served by different combined strategies, where no propensity score matching was conducted in sampling, HLM was used to adjust for differences at school district level and any differences at student level by including the 11 covariates in modeling.

Because of differences in types of data for the 5 outcome measures, two regression models under HLM were employed, logistic regression modeling for binary outcomes (grade retention, speech impairment and learning disability), and regression modeling for ordinal level outcomes (SCRA). As 3 or more years of data were available for the earliest two FYs (2003-04, 2004-05) for grade retention, speech impairment and learning disability, growth rates were able to be estimated, which provides an overall trend of change in these outcomes with the students' advancement of grade. In accordance with analyses for growth rates, 3-level HLM modeling was conducted. Level 1 modeled the outcome as a function of grade. Level 2 modeled the initial status and growth rate as a function of whether or not the student participated in a First Steps program (for groups matched by propensity score), or as function of the types of combined strategies the student participated in and 11 covariates (for FS children with different combined strategies). Level 3 set free the variations in the initial status and growth rate. In all the other circumstances with only two or fewer years of data (SCRA for all the 5 FYs, and all the 5 measures for the 3 later FYs) where growth rates were not be able to estimated, 2-level HLM was used instead.

For FYs 2004-05, and 2005-06 only ½-day plus PAT indicated any significant results where participation in both programs decreased the odds of scoring higher on a higher level of SCRA compared to those children only enrolled in full-day 4K.

Table 70 presents the estimated percentages and odds ratios on SCRA levels in kindergarten and 1st grade for FY 2004-05. There were no significant differences between First Steps combined

strategies and full-day 4K except approaches to learning where ½-day 4K plus PAT children were significantly less likely to score on a higher level (0.63, p<.05).

Table 70. First Steps Single and Combined Strategies: Fiscal Year 2004-05 SCRA Estimated Percentages and Odds Ratios in Kindergarten and 1st Grade

	2004-05					
	Kindergarten			1st Grade		
	Full-Day 4K	Full-Day + PAT	½-Day + PAT	Full-Day 4K	Full-Day + PAT	½-Day + PAT
Social						
Lowest 10%	9.68	11.54	7.71	8.45	10.07	7.08
Between	28.88	31.76	25.14	29.29	32.30	26.28
Perfect	61.44	56.70	67.15	62.26	57.63	66.64
Odds Ratio (Compared to Full-Day)		0.82	1.28		0.82	1.21
Approaches to Learning						
Lowest 10%	7.66	7.26	11.61	11.42	13.19	10.64
Between	38.63	37.58	46.10	40.04	42.35	38.83
Perfect	53.70	55.17	42.29	48.53	44.46	50.54
Odds Ratio (Compared to Full-Day)		1.06	0.63*		0.85	1.08
Language						
Lowest 10%	9.58	10.68	10.52	10.20	12.00	9.94
Between	45.95	47.82	47.56	49.43	51.94	49.00
Perfect	44.48	41.49	41.92	40.37	36.05	41.06
Odds Ratio (Compared to Full-Day)		0.89	0.90		0.83	1.03
Math						
Lowest 10%	9.45	11.34	10.17	10.24	12.47	12.16
Between	51.47	54.30	52.66	41.38	44.66	44.25
Perfect	39.08	34.36	37.17	48.37	42.87	43.59
Odds Ratio (Compared to Full-Day)		0.82	0.92		0.80	0.82

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 71 presents the estimated percentages and odds ratios on SCRA levels in kindergarten and 1st grade for FY 2005-06. There were no significant differences between First Steps combined strategies and full-day 4K.

Table 71. First Steps Single and Combined Strategies: Fiscal Year 2005-06 SCRA Estimated Percentages and Odds Ratios in Kindergarten and 1st Grade

	2005-2006					
	Kindergarten			1st Grade		
SCRA Scale	Full-Day	Full-Day + PAT	½ -Day + PAT	Full-Day	Full-Day + PAT	½ -Day + PAT
Social						
Lowest 10%	10.64	8.55	8.62	11.33	7.76	11.60
Between	34.90	31.09	31.22	29.98	23.90	30.34
Perfect	54.45	60.36	60.17	58.69	68.35	58.06
Odds Ratio (Compared to Full-Day)		1.27	1.26		1.52	0.97
Approaches to Learning						
Lowest 10%	12.16	10.66	13.82	10.85	11.91	15.55
Between	42.15	39.96	44.12	37.60	39.18	43.17
Perfect	45.69	49.38	42.06	51.55	48.91	41.28
Odds Ratio (Compared to Full-Day)		1.16	0.86		0.90	0.66†
Language						
Lowest 10%	9.70	11.15	13.40	9.90	10.04	13.96
Between	47.19	49.51	52.13	47.28	47.52	52.39
Perfect	43.12	39.34	34.47	42.82	42.44	33.05
Odds Ratio (Compared to Full-Day)		0.86	0.69		0.98	0.68
Math						
Lowest 10%	8.02	10.84	11.58	10.58	9.92	15.19
Between	49.58	54.61	55.53	44.24	43.11	49.55
Perfect	42.41	34.55	32.89	45.18	46.96	35.26
Odds Ratio (Compared to Full-Day)		0.72	0.67		1.07	0.66

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

In FY 2006-07 the impact of multiplicity of interventions can be seen. Table 72 presents the estimated percentages and odds ratios on SCRA levels in kindergarten and 1st grade for FY 2006-07. There were significant differences between participation in either full- or ½-day 4K plus PAT when compared to full-day 4K in kindergarten where combined strategies indicated increased odds of being on a higher level on approaches to learning (1.74, $p < 0.5$ and 1.72, $p<.05$). Full-day plus PAT also had significantly increased odds of being on a higher level compared to full-day 4K (1.59, $p<.05$) on SCRA math scales. This was also true for math in 1st grade when ½-day plus PAT had significantly increased odds of being on a higher level (1.83, $p < 0.01$).

Table 72. First Steps Single and Combined Strategies: Fiscal Year 2006-07 SCRA Estimated Percentages and Odds Ratios in Kindergarten and 1st Grade

	2006-07					
	Kindergarten			1st Grade		
	Full-Day 4K	Full-Day + PAT	½ -Day + PAT	Full-Day 4K	Full-Day + PAT	½ -Day + PAT
Social						
Lowest 10%	11.79	9.91	9.23	12.02	9.46	9.1
Between	32.05	29.21	28.04	30.56	26.73	26.1
Perfect	56.17	60.88	62.73	57.42	63.81	64.8
Odds Ratio (Compared to Full-Day)		1.21	1.31		1.31	1.36
Approaches to Learning						
Lowest 10%	14.68	9.01	9.08	15.06	12.70	11.42
Between	49.55	41.82	41.96	40.70	38.14	36.40
Perfect	35.77	49.17	48.96	44.24	49.16	52.18
Odds Ratio (Compared to Full-Day)		1.74*	1.72*		1.22	1.38
Language						
Lowest 10%	12.85	9.86	11.03	15.02	11.42	10.70
Between	51.00	46.85	48.74	51.91	48.19	47.14
Perfect	36.15	43.30	40.23	33.07	40.39	42.16
Odds Ratio (Compared to Full-Day)		1.35	1.19		1.37	1.48†
Math						
Lowest 10%	14.71	9.80	10.36	16.88	12.58	9.97
Between	54.15	48.42	49.35	44.54	40.44	36.51
Perfect	31.15	41.78	40.29	38.58	46.98	53.52
Odds Ratio (Compared to Full-Day)		1.59*	1.49		1.41	1.83**

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

For FY 2007-08, ½-day plus PAT (.59, $p < 0.05$) and full-day plus literacy (.56, $p < 0.05$) showed significantly decreased odds of scoring on a higher level on SCRA when compared to full-day 4K for approaches to learning (Table 73).

Table 73. First Steps Single and Combined Strategies: Fiscal Year 2007-08 SCRA Estimated Percentages and Odds Ratios in Kindergarten

	2007-2008			
	Kindergarten			
SCRA Scale	Full-Day 4K	Full-Day + PAT	½ -Day + PAT	Full-Day + Literacy
Social				
Lowest 10%	9.67	8.54	9.75	10.64
Between	23.17	21.35	23.29	24.58
Perfect	67.16	70.11	66.96	64.79
Odds Ratio (Compared to Full-Day)		1.15	0.99	0.90
Approaches to Learning				
Lowest 10%	8.51	9.13	13.63	14.17
Between	33.96	35.24	41.97	42.54
Perfect	57.53	55.63	44.39	43.30
Odds Ratio (Compared to Full-Day)		0.93	0.59*	0.56*
Language				
Lowest 10%	10.24	7.95	11.63	8.92
Between	44.52	39.85	46.63	42.05
Perfect	45.24	52.20	41.74	49.03
Odds Ratio (Compared to Full-Day)		1.32	0.87	1.16
Math				
Lowest 10%	9.50	8.26	11.37	8.66
Between	43.82	41.23	46.89	42.11
Perfect	46.68	50.50	41.74	49.24
Odds Ratio (Compared to Full-Day)		1.17	0.82	1.11

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 74 presents estimated percentages of grade retention and odds ratios by combined strategies by fiscal year. Compared to the full-day 4K children, combined strategy First Steps children had no significant differences in retention in 1st grade for any FY as shown by odds ratio in the odds ratio at 1st grade row. Only for FY 2004-05, because data was available for more than two years, was comparison between full-day 4K and combined strategies First Step children able to be conducted beyond 1st grade using gain per year (gain greater than 1 indicates an increase with grade, and less than 1, a decrease). For FY 2004-05, retention for both full-day 4K and First Steps combined strategies increased significantly with advancement of grade. Gain per year was 1.93 ($p < 0.01$) for full-day 4K, 1.62 ($p < 0.01$) for full-day 4K plus PAT, and 1.46 ($p < 0.01$) for ½-day 4K plus PAT meaning the odds of being retained increased on average by 93%, 64%, and 46% respectively every year. The odds ratio for the gains (.76, $p < 0.01$) showed that grade retention for ½-day 4K plus PAT increased at a significantly

slower rate than full-day 4K up to the 3rd grade. These differences in gains were not replicated in the remaining FYs however ½-day plus PAT trended toward significantly higher retention for all FYs when compared to full-day 4K

Table 74. First Steps Combined Strategies: Odds Ratio of Grade Retention by Fiscal Year and Grade

		Estimated Percentage of Grade Retention			
Fiscal Year	Grade	Full-Day 4K	Full-Day + PAT	½ -Day + PAT	Full-Day + Family Literacy
2004-05	1	5.78	7.32	7.17	
	2	10.59	11.32	10.16	
	3	18.60	17.11	14.20	
Odds Gain Per Year		1.93**	1.62**	1.46**	
Odds Ratio for Gains			0.84†	0.76**	
Odds Ratio at 1st Grade			1.29	1.26	
2005-06	1	3.63	4.62	6.35	
	2	12.27	12.76	17.26	
Odds Ratio at 1st Grade			1.29	1.80†	
Odds Ratio at 2nd Grade			1.05	1.49	
2006-07	1	1.7	2.20	4.76	
Odds Ratio at 1st Grade			1.28	2.84†	
2007-08	1	2.6	3.30	5.16	1.47
Odds Ratio at 1st Grade			1.23	1.96†	0.54

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 75 presents estimated percentages of speech impairment and odds ratios by combined strategies by fiscal year. Compared to the full-day 4K children, combined strategy First Steps children had no significant differences in speech impairment in kindergarten and 1st grade for during FY 2004-05 as shown by odds ratio in the odds ratio at kindergarten row. Only for FY 2004-05, because data was available for more than two years, was comparison between full-day 4K and combined strategies First Step children able to be conducted beyond 1st grade using gain per year (gains greater than 1 indicate an increase with grade, and less than 1, a decrease). For FY 2004-05, speech impairment for both full-day 4K and ½-day 4K plus PAT decreased significantly with advancement of grade. Gain per year was 0.82 ($p < 0.01$) for full-day 4K and 0.82 ($p < 0.01$) for ½-day 4K plus PAT. Full-day 4K plus PAT was a non-significant 0.92 decrease.

Compared to the full-day 4K children, combined strategy First Steps children were significantly more likely to be diagnosed as speech impaired in kindergarten for full-day 4K plus PAT in FYs 2005-06 (2.33, p <.01) and 2006-07 (1.87, p < .05) and for ½-day 4K plus PAT in FY 2005-06 (1.86, p<.05).

In FY 2007-08 full-day 4K plus family literacy had significantly decreased odds of being diagnosed with speech impairment in kindergarten (0.37, p < .05).

Table 75. First Steps Combined Strategies: Odds Ratios of Speech Impairment by Fiscal Year and Grade

		Estimated Percentage of Speech Impairment			
Fiscal Year	Grade	Full-Day 4K	Full-Day + PAT	½ -Day + PAT	Full-Day + Family Literacy
2004-05	K	23.45	24.81	22.53	
	1	20.13	23.25	19.26	
	2	17.17	21.75	16.36	
	3	14.57	20.33	13.83	
Odds Gain Per Year		0.82**	0.92	0.82**	
Odds Ratio for Gains		—	1.12	1.00	
Odds Ratio at Kindergarten		—	1.08	0.95	
2005-06	K	13.80	27.17	22.93	
	1	10.89	26.68	18.04	
	2	9.57	20.23	11.28	
Odds Ratio at Kindergarten		—	2.33**	1.86*	
Odds Ratio in 1st Grade		—	2.98**	1.80	
Odds Ratio in 2nd Grade		—	2.40*	1.20	
	K	13.85	23.10	15.99	
2006-07	1	13.32	18.38	14.13	
Odds Ratio at Kindergarten		—	1.87*	1.18	
Odds Ratio in 1st Grade		—	1.47	1.07	
2007-08	K	14.26	17.55	18.08	5.84
Odds Ratio at Kindergarten		—	1.28	1.33	0.37*

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Table 76 presents estimated percentages of learning disability and odds ratios by combined strategies by fiscal year. Compared to the full-day 4K children, only ½-day 4K plus PAT children had significantly lower differences in learning disability in kindergarten (.34, p < .01) as shown by odds ratio in the odds ratio at kindergarten row.

Only for FY 2004-05, because data was available for more than two years, was comparison between full-day 4K and combined strategies First Step children able to be conducted beyond kindergarten using gain per year (gain greater than 1 indicates an increase with grade, and less than 1, a decrease). For FY 2004-05, learning disability for all comparison groups increased significantly with advancement of grade. Gain per year was 1.66 ($p < 0.01$) for full-day 4K, 1.64 ($p < 0.01$) for full-day 4K plus PAT and 2.51 ($p < 0.01$) for ½-day 4K plus PAT. The odds ratio for the gains for ½-day plus PAT (1.51, $p < 0.01$) showed that learning disability diagnosis increased at a significantly faster rate than full-day 4K up to the 3rd grade.

Table 76. First Steps Combined Strategies: Odds Ratios of Children with Learning Disabilities by Fiscal Year and Grade

		Estimated Percentage of Learning Disability			
Fiscal Year	Grade	Full-Day 4K	Full-Day + PAT	½ -Day + PAT	Full-Day + Family Literacy
2004-05	K	1.69	2.11	0.59	
	1	2.77	3.41	1.46	
	2	4.52	5.48	3.58	
	3	7.29	8.68	8.52	
Odds Ratio Gains Per Year		1.66**	1.64**	2.51**	
Odds Ratio for Gains			0.99	1.51**	
Odds Ratio at Kindergarten			1.25	0.34**	
2005-06	K	0.00	0.00	2.90	
	1	1.00	3.20	3.60	
	2	2.00	5.10	7.40	
2006-07	K	0.40	0.60	1.30	
	1	1.30	3.30	2.90	
2007-08	K	1.00	1.10	2.40	0.0

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Note. Because of the rare occurrence of learning disabilities for some groups (FYs 2005-2008), HLM analyses were not conducted and shown percentages are unadjusted.

Summary

Combined results from the earliest FYs were presented with caution as there is little knowledge of the quality, duration, and intensity of PAT implementation during these time frames. Nevertheless, for FYs 2004-05, and 2005-06 only ½-day plus PAT indicated any significant results where participation in both programs decreased the odds of scoring on a higher level of SCRA compared to those children only enrolled in full-day 4K. In FY 2006-07 the impact of multiplicity of interventions can be seen. In FY

2006-07 there were significant differences between participation in either full- or ½-day 4K plus PAT when compared to full-day 4K in kindergarten where combined strategies showed increased odds of being on a higher level on approaches to learning. Full-day plus PAT also had significantly increased odds of being on a higher level compared to full-day 4K on SCRA math scales. This was also true for math in 1st grade when ½-day plus PAT had significantly increased odds of being on a higher level.

Compared to the full-day 4K children, full-day plus PAT First Steps children were not significantly different in their retention rates. Half-day plus PAT however trended toward significantly higher retention for all FYs when compared to full-day 4K. Combined strategy First Steps children in general, were more likely to be diagnosed as speech impaired in kindergarten but were not significantly different in learning disabilities compared to the full-day 4K children.

Summary of Findings

Ultimately all the evaluation questions, data, and information in this evaluation should come back to the four guiding questions which overarched this endeavor. These questions, which were unable to be answered satisfactorily in the 2006 evaluation, are in large measure addressed in this current work. However, even for questions still unanswerable, the lack of data was most often simply due to the short time frame between the changes enacted by the First Steps Board of Trustees, which became effective in August 2007, and this evaluation. In these instances, one or two years of data are not sufficient to make strong conclusions about the impact of intervention programs.

Who Is Being Served?

Analysis of First Steps participants indicates that First Steps is meeting its initiative to serve the neediest of South Carolinians or in other words, those at the highest risk for not being ready for school. On average, First Steps participants tended to be non-white and have significantly higher rates of Medicaid, TANF, and Food Stamps, and higher free lunch index ratings when compared to non-First Steps 4K and non-First Steps/no-4K children. First Steps children had significantly higher rates of low-birth weight and First Steps mothers had significantly lower rates of education when compared to non-First Steps families. As in the 2006 evaluation, First Steps appears to continue to serve "the neediest of the needy" or the most at-risk.

What Is the Range and Quality of the Services Being Provided?

Initially the range and quality of services were two separate questions. In this evaluation they are closely connected and therefore are addressed together

The question "What services are being provided?" can also be posited as "Are First Steps funds being spent on well-documented, research-based programs that target and provide effective services to children and families at risk?" Very closely related is the question "Are First Steps services implemented in the right ways?" A consideration of the range of programs that benefit from First Steps funds on child outcomes cannot be separated from an investigation of program quality. Dollars may be reaching target constituents to little or no effect if the quality of programming is inadequate.

First Steps has consistently invested in several types of strategies during the last four years of operation. The largest investments have included over $21 million dollars enhancing early education, over $35 million in parenting home visitation strategies, and over $27 million increasing access to and enhancing the quality of child care. Other types of services received smaller amounts.

This 2009 evaluation focused on three primary strategies that First Steps funds' - four-year-old kindergarten, parenting home visitation strategies, and child care quality enhancement. It additionally addressed the school transition program Countdown to Kindergarten. These three chief strategies, for the most part, use programs that are widely considered to be well-documented and research based. These include Parents as Teachers, Parent-Child Home and other family literacy model programs, and 4-Year-Old Kindergarten among others. First Steps 4K meet this criterion (well-documented and research based) by using one of three specified research-based curriculum models. Nevertheless, it is possible to invest in a documented program without using the program in its fully intended form. Fidelity of implementation requires that the delivery of a program model be in the manner in which it was designed to be delivered (Gresham, MacMillan, Beebe-Frankenberger, & Bocian, 2000). As programs become widely disseminated, there is a tendency for practitioners to alter programs (or assessments) in a manner more conducive to their immediate needs which may adversely affect program outcomes (Johnson, Mellard, Fuchs, & McKnight, 2006). This was clearly evident in the 2006 evaluation.

The effect of the programmatic and evaluation requirements enacted by the First Steps Board of Trustees, which became effective in August 2007, allowed this evaluation to begin to answer questions regarding the range and quality of services. These more stringent requirements, that align with the fidelity requirements of the programs and which were incorporated as contractual requirements for all County Partnerships and their own programmatic vendors, specified that programs such as PAT/PCH be implemented with fidelity. For those programs which have clear fidelity guidelines, most clearly seen in the home visitation strategies, data provided documentation of improved program fidelity. This improved program quality is evidenced by improved participant outcomes.

What cannot be determined is the level of quality and fidelity to curriculum models in First Steps 4K classrooms. While quality is measured in classrooms undergoing quality enhancement it is not evaluated in 4K classrooms. Additionally, fidelity to curriculum models is not appraised. Without quality and fidelity data for both First Steps and non-First Steps 4K, the impact of higher quality and fidelity of implementation cannot be determined.

Do the Services Impact the Outcomes of Participants?

The most crucial concern for many supporters and skeptics alike of the First Steps initiative is its impact on outcomes. Specifically, everyone is interested in child outcomes that relate to school readiness. The question of impact, however, should not just be limited to the assessment of child outcomes and how they are measured. As was discussed in the 2003 and 2006 evaluations and bears repeating, as a comprehensive initiative (as outlined in their enabling legislation) First Steps provides comprehensive services and programs that support and educate families in wide-ranging ways to increase school readiness. An important focus of evaluation therefore needs to be measuring the impact that individual programs have directly on programs, parents, and families. Child care quality improvement needs to be measured to document gains from participation in quality enhancement activities. Parents' knowledge or skills need to be measured directly to document gains for the adult participants. Additionally, the focus of child outcomes should also be on child well-being and child/parent relationships that are more directly linked to the content of the parenting and family literacy programs (e.g. decreased incidents of abuse or neglect, increased levels of parent-child communication/positive interactions, more time spent reading to one's children).

Home Visitation Strategies

There was evidence in pre-assessment scores that First Steps is able to identify and recruit parents in need of parenting support. Participants saw significant increases in their pre- and post-assessments. Overall, 54% of participants who scored low quality of parenting improved to a moderate quality of parenting. Forty four percent who scored having moderate parenting skills moved to a high-quality of parenting. And, 11.9% who had low quality parenting at pre-test increased their skills to high quality.

Participants saw significant increases in KIPS scores between their pre- and post-assessments. Length of treatment was significantly related to the ability of parents to increase the quality of their parenting skills, families who participated for 4-6 and more than 12 months had the greatest gains. For ACIRI there was a consistent and positive, albeit non-significant, trend from shorter treatment with smaller gains to longer treatment and greater gains. For family literacy, the ACIRI sample size was not sufficient to adequately measure whether length of treatment made a statistically significant difference. However, if the parenting sample were the same size as the family literacy, results would most likely be very similar. The trend in the family literacy sample mirrors the parenting in that gains increase with length of intervention. Nevertheless, while the parenting results can significantly show that length of treatment is important for meaningful gains, the family literacy results can only suggest so.

Child Care Strategies

Child care centers and family day care providers who participated in First Steps quality enhancement initiatives showed significant improvement in center quality. Three hundred and twelve programs were evaluated with both a pre and post Environmental Rating Scale (ERS) during FYs 2008 and 2009. Gains for all scales on ECERS and ITERS were significant if pre/post assessment occurred 6 months or more apart. For family day care providers, the overall score showed significant gains were made between pre/post assessments on the FDCERS.

School Transition: Countdown to Kindergarten

First implemented during the summer of 2005, Countdown to Kindergarten is a relatively new First Steps strategy. While not the largest strategy funded by First Steps (costing approximately $495,000 per year), it is one of the few state-wide strategies administered at the state level. The difficulties of implementation and evaluation of new strategies has been a constant theme throughout First Steps history. CTK is no different. While CTK has served approximately 3,100 children through the school transition strategy program curriculum, staff development, and recruitment strategies have been developing and slowly solidifying. Outcome data, not available via a standardized process, is only available through self-report. Rigorous evaluation has yet to occur.

Of self-report data available, home visitors reported significant benefit for themselves and the children and parents they visit. They describe the impact that participation in CTK has had in their understanding of the lives of the students and parents in their classrooms. And, as a result, many home visitors indicated they have made significant changes in their instructional techniques and classroom practices as well as the types of experiences they provide for their students as a direct result of CTK.

Parents whose children participated in CTK reported significant benefits for themselves and their children. At the completion of CTK, parents reported both they and their child had significant increase in familiarity with a kindergarten classroom and parents reported their children as having significant increase in confidence and excitement about attending kindergarten.

Pre/post evaluation of parent's likelihood of participating in specific behaviors that teachers often identify as important showed that post-CTK all identified behaviors saw significant gains. The number and percentage of parents who reported they were likely or extremely like to participate as a result of CTK increased. The largest increase was in parent's willingness to volunteer in the classroom and help out with field trips or special events.

Child Outcomes (4K)

This analysis used results from SCRA and PACT, as well as data on retention, learning disability status, and speech impairment categorization to examine the impact of First Steps on 5 FYs (FYs 2003-09) of children. Factor analyses were used to create SCRA scales, propensity score matching to create matched comparison groups, and hierarchical linear modeling to calculate odds ratios to compare prekindergarten status on outcomes variables. Four stratifications were used for analysis: 1) First Steps with 4K versus a matched First Steps non-4K; 2) First Steps without 4K versus matched non-First Steps non-4K; and 3) First Steps CDEPP versus matched non-First Steps full-day 4K and non-First Steps non-4K groups; 4) First Steps combined strategies versus full-day 4K. It is important to note the definition of a First Steps 4K child. A First Steps 4K child is any child who received any form of First Steps funding and attended 4K. It is only in the CDEPP program, a relatively recent First Steps initiative that First Steps children who received 4K are clearly in a controlled First Steps 4K environment. All other First Steps 4K children are enrolled in non-First Steps 4Ks. First Steps has no control over the classroom experience of these children. All outcomes should be interpreted with this definition in mind.

For First Steps 4K versus matched non-4K, findings indicated that compared to the matched non-4K children, First Steps children who attended 4K were, in general, not significantly different in 3 outcomes: grade retention up to 4th grade; SCRA level at kindergarten and 1st grade (except for 1 FY with generally lower levels in language and math); and PACT scores at 3rd and 4th grade. Compared to matched non-4K children First Steps 4K children were much more likely to be diagnosed as special needs in kindergarten particularly as speech impaired. Speech impairment however decreased with advancement of grade and First Steps 4K tended to close the gap with their counterparts by 4th grade.

Findings for First Steps non-4K versus matched non-4K indicated that compared to the matched non-4K children, First Steps non-4K children were, in general, not significantly different in grade retention up to 4th grade, SCRA levels in kindergarten and 1st grade, PACT scores at 3rd and 4th grade and speech impairment. Compared to the matched non-4K children First Steps non-4K children had a tendency of being less likely to be diagnosed as learning disabled in kindergarten.

Findings from comparisons between CDEPP and matched full-day and non-4K children were quite promising. They indicated CDEPP children were not significantly different in SCRA outcomes in kindergarten. CDEPP children compared to matched full-day 4K were less likely to be diagnosed with speech impairment or a learning disability but were more likely to be retained in kindergarten. There were no significant differences between non-4K and CDEPP children. Given the relatively short time frame of existence and lack of more than one year of data however, results should be interpreted with great caution.

Combined results from the earliest FYs were presented with caution as there is little knowledge of the quality, duration, and intensity of PAT implementation during these time frames. Nevertheless, for FYs 2004-05, and 2005-06 only ½-day plus PAT indicated any significant results where participation in both programs decreased the odds of scoring on a higher level of SCRA compared to those children only enrolled in full-day 4K. In FY 2006-07 the impact of multiplicity of interventions can be seen. In FY 2006-07 there were significant differences between participation in either full- or ½-day 4K plus PAT when compared to full-day 4K in kindergarten where combined strategies showed increased odds of being on a higher level on approaches to learning. Full-day plus PAT also had significantly increased

odds of being on a higher level compared to full-day 4K on SCRA math scales. This was also true for math in 1st grade when ½-day plus PAT had significantly increased odds of being on a higher level.

Compared to the full-day 4K children, full-day plus PAT First Steps children were not significantly different in their retention rates. Half-day plus PAT however trended toward significantly higher retention for all FYs when compared to full-day 4K. Combined strategy First Steps children in general, were more likely to be diagnosed as speech impaired in kindergarten but were not significantly different in learning disabilities compared to the full-day 4K children.

Conclusions and Recommendations

Overall, First Steps has made significant improvements since the 2006 evaluation. Changes incorporated into programmatic requirements and data collection improved the integrity of the existing data by significantly decreasing missing client data and allowing child/adult records to be connected. It also allowed partnership client records to more accurately reflect output data.

The implementation of state-wide programmatic requirements and evaluation measures had the most significant impact on the ability of First Steps to document the work it undertakes. The creation of consistent programmatic requirements and assessments allowed for true outcome evaluation. It also forced improvements in program quality. None of this could have occurred without improved communication with both county and agency partnership.

The ability of First Steps county partnerships to continue to identify the neediest families (or the most at-risk) is to be lauded. On the whole, First Steps participants continued to have significantly higher rates of Medicaid, TANF, and Food Stamps, and higher free lunch index ratings when compared to non-First Steps 4K and non-First Steps/non-4K children. First Steps children have significantly higher rates of low-birth weight and First Steps mothers have significantly lower rates of education when compared to non-First Steps families. In all child outcome analyses, First Steps children had high rates of retention (except for CDEPP participants), high rates of diagnosed speech impairments and were more likely to be diagnosed as learning disabled in kindergarten.

The ability to identify the most vulnerable families in need of First Steps parenting was equally impressive. In 2007-08 families with 2 or more risk factors made up 67% of participants whereas in 2008-09 that number increased to 78%. Over 80% of participants who participated for both years had 2 or more risk factors. When combined with pre-assessment evaluations, which indicated the large percentage of parents who scored low quality parenting, it is evident that First Steps is clearly meeting its mission in assisting at-risk parents with "…access to the support they might seek and want to strengthen their families and to promote the optimal development of their preschool children" (Section 59-152-30).

The lack of high quality data for children in the early years of First Steps continues to effect this evaluation. In the first 3 FYs included in this evaluation First Steps databases had missing data problems that raised concerns regarding whether these databases were representative of all First Steps clients and whether results could be generalized. Additionally, these three fiscal years (2003-04, 2004-05 and 2005-06) still lack specific information regarding the quality, duration, and intensity of interventions.

It is in data collect during the most recent fiscal years (2006-07 and 2007-08) that First Steps is able to demonstrate that funds are being spent on productive returns on investment. The ability to match outcomes to detailed, specific intervention data is extraordinary and non-existent in most state data systems. In these two years of data these specific findings stand out:

1. The impact of home visitation interventions to change parenting skills. Participants saw significant increases in their pre- and post-assessments. Overall, 54% of participants who scored low quality of parenting improved to a moderate quality of parenting. Forty four percent who scored moderate parenting skills moved to a high-quality of parenting, and 11.9% who had low quality parenting at pre-test increased their skills to high quality.
2. The impact of First Steps on child care quality through its child care quality enhancement strategy. Universally, child care centers and providers who participated showed significant increases in pre/post scores of assessed child care quality. Gains were seen for all scales on ECERS, ITERS and FDCERS as a result of quality enhancement strategies.
3. The impact of Countdown to Kindergarten. Through self-report data, all participants whether home visitor or parents report the significant impact this strategy has on professional practice, parent-teacher relationships, and parent participation in and child attitudes toward kindergarten.
4. The potential demonstrated in combined strategies. Except for one scale, child outcomes in FY 2006-07 indicated increased odds of scoring on a higher level on every SCRA scale when PAT is combined with 4K compared to full-day 4K only.
5. The potential demonstrated in the CDEPP initiative. With only one year of data, CDEPP children were not significantly different in the odds of scoring on a higher level on every SCRA scale compared to full-day 4K and non-4K children. They also had significantly lower

speech impairment and learning disability diagnoses. This may demonstrate the potential for implementing public programs in private settings in a less expensive manner with similar results.

Recommendations

While a great deal of work has been accomplished, potential improvement remains.

First and foremost, First Steps must continue to focus on efforts to improve data collection and continue to build better data systems. Data systems greatly improved between 2006 and 2009 however more work remains. It is recommended that First Steps continue to improve data collection efforts across strategies. First Steps still does not collect all data within one data system. Clearly for evaluation purposes, the ability to link data is of upmost priority. Specifically Countdown to Kindergarten must be incorporated into the First Steps data system.

Home visitation strategies saw clear and marked improvement between the 2006 and 2009 evaluations. First Steps should be commended for the obvious improvements in implementation and data collection. Data collected under the new programs standards for the last two FYs saw improvements in completeness and quality. Quality and fidelity of program implementation saw progress during the two years as well. Eight five percent of families received more than 2 visitations per month during the FYs under consideration. If program strategy requirements regarding data collection and the quality and fidelity of implementation continue to be enforced until the 2012 evaluation, First Steps will be in a unique position (across the country and in the research literature) to be able document the value of parent home visitation on a large longitudinal sample with high quality data.

Countdown to Kindergarten, as one of the newest strategies implemented by First Steps, is clearly in need of efforts to document its efficacy. This work, as it has evolved since its inception, holds great promise to improve the experience of kindergarten transition for children and their parents. Early school adjustment has been shown to have a long-term impact on children's later school success (Glicksman & Hills, 1981; Lombardi, 1992; Pianta & Cox, 1999). This evaluation was originally intended to include a new data collection to address research questions related to CTK however financial constraints forced a postponement. Until the financial crisis passes, First Steps could improve CTK data

that is already being collected by incorporating CTK data into the First Steps data system to allow for participants to be included in longitudinal and combined strategy analyses.

Improvements were clearly obvious in both the quality and quantity of data collected. Nevertheless specific problems were still obvious. The issue of missing data was still problematic.

Home visitation data had large amounts of unmatched and unqualified KIPS and ACIRI assessments. Though the number of unmatched and unqualified assessments improved in the second year of new program standards, the unqualified rate was still approximately 30%. Further analysis of the data set would be helpful to determine why so many unmatched and unqualified assessments exist.

Quality enhancement data was missing center information. Many classrooms had pre/post ERS assessments but when data was merged with center variables, only 32 centers were able to be linked.

The addition of several variables to the database would be helpful.

1. For home visitation it would be helpful if at each time of assessment with KIPS and/or ACIRI a variable existed which indicated when home visitation began, if it is still in process, and when it ended. This would allow for more specific evaluation of length of treatment related to outcomes. Currently, it is difficult to determine if participants have dropped out of the program or are continuing and have not yet had a final post-assessment.
2. The addition of family information such as incidents of abuse or neglect and time spent reading to one's children would be helpful to ascertain additional impact of home visitation strategies.
3. Similarly to home visitation, quality enhancement evaluation would be strengthened by a variable that indicates when quality enhancement began, if it is still in process, and when it ended. Again, this would allow for more specific evaluation of length of treatment related to outcomes.

The ability to analyze child outcomes has greatly improved since the 2006 evaluation in which significant data problems were encountered. These problems included children not identified in Department of Education databases as well as missing data problems. Generalizations that could be

made regarding First Steps child outcomes were limited. Because of these problems, data collected during the first two years of First Steps were not included in these analyses. Data collection has improved by year with the last two fiscal years showing great promise for future evaluation.

Specific attention needs to be paid to the high incidence of speech impairment for the combined strategies and to the high incidence of retention in all 4Ks and in CDEPP. The incidence of speech impairment for all kindergartners in South Carolina is significantly higher than the national average. Speech and language impairments are evident in approximately 7% of children nationally at school entry (Bartlett, Flax, Logue, 2002). In SC the kindergarten rate is much higher (as evidenced in the CDEPP evaluation at 11.5% for full-day 4K and 5.9% for CDEPP). The reasons for this are unclear and deserve further scrutiny. Further investigation could give insight into the causes and any potential solutions to these issues. It must be noted however that only one year of data exists for CDEPP therefore conclusions must be drawn with caution.

During the recent financial crisis, First Steps and initiatives like it have struggled with the question of how to invest limited funds in ways that are likely to produce the greatest gains. There is a delicate balance that must be struck between the costs associated with creating more programs, deciding which programs to maintain, and insuring that any programs that exist are of high quality. First Steps must continue to collect data that provides direction for these financial, administrative, and policy decisions.

There were no evaluation questions in this work that addressed whether First Steps should be seeking to create new/more interventions. However, the decrease in state investments in the First Steps budget dictates that future expansion will be limited in scope. Unless the state legislature or governor's office provides funding for expansion or deeds control of specific services (and the funds necessary to implement them) to First Steps, expansion will by necessity be limited to private or federal funding. This may be an advantageous position for First Steps allowing it to demonstrate and document its ability to invest limited resources in providing quality services that have evidence of effectiveness for the neediest children.

The decision about which programs First Steps should maintain should clearly be based on demonstrated effectiveness to the neediest children and families in South Carolina. In particular, the

2006 evaluation was unable to demonstrate the value of parenting and home visitation strategies to parents and children and raised serious questions regarding what types of services First Steps should be funding. This evaluation has a different conclusion. There is clear evidence that the parenting/home visitation initiatives evaluated here were effective and impacted the parenting skills and school readiness of children. Efforts should be made to maintain these.

The Child Development Education in Private Settings (CDEPP) strategy is the newest First Step initiative evaluated in this report. CDEPP demonstrated great promise regarding the ability of private programs to provide equivalent 4K services at a lower cost. This strategy should be maintained and evaluation should continue to document whether preliminary results are sustained over a longer time frame.

While not exactly a program, the focus within First Steps to provide multiple interventions to its participants should be continued. This analysis indicated that the number of First Steps participants participating in more than one strategy increased significantly between FYs 2003-04 and 2007-08. This occurred during the same period in which First Steps 4K participants have become more at-risk with increased rates of Medicaid, TANF, Food Stamp receipt, and higher free-lunch index ratings. This approach to intervention may prove to be cost-effective. Results documented the strength of multiple interventions, particularly full-day 4K with parenting, on child outcomes.

The importance of quality and the efforts made to improve quality since the 2006 evaluation cannot be underestimated. It is because of efforts to improve the quality of services and data collection that clear and consistent outcomes were able to be determined. First Steps is to be commended for the scope and depth of changes that were implemented in a very short time frame. These changes allowed for the documentation provided in this report.

References

Bartlett, C.W., Flax, J.F., Logue, M.W. (2002). A major susceptibility locus for special language impairment is located on 13q21. *American Journal of Human Genetics, 71*(1):45-55.

Browning, K., Daniel-Echols, M., Xiang, Z. (2006). *From Implementation to Impact: An Evaluation of South Carolina's First Steps to School Readiness*. Ypsilanti, MI: Author

Child Trends. (2003a). *First steps and further steps: Early outcomes and lessons learned from South Carolina's school readiness initiative (1999–2002 Program Evaluation Report)*. Washington, DC: Author.

Gresham, F.M., MacMillan, D.L., Beebe-Frankenberger, M.E., & Bocian, K.M. (2000). Treatment integrity in learning disabilities intervention research: Do we really know how treatments are implemented? *Learning Disabilities Research & Practice, 15*(4), 198–205.

Johnson, E., Mellard, D.F., Fuchs, D., & McKnight, M.A. (2006). *Responsiveness to intervention (RTI): How to do it.* Lawrence, KS: National Research Center on Learning Disabilities.

Johnson, N., Oliff, P., and Williams, E.(2010). *An Update on State Budget Cuts: At Least 46 States Have Imposed Cuts That Hurt Vulnerable Residents and the Economy*. Retrieved from http://www.cbpp.orgcms/index.cfm?fa=view&id=1214.

March of Dimes (2010). Infant mortality rates: South Carolina, 2003-2006. Retrieved September 9, 2010, from www.marchofdimes.com/peristats.http://www.marchofdimes.com/peristats/level1.aspx?dv=rdo&reg=45&top=6&stop=91&lev=1&cmp=&slev=4&eny=&sty=&chy=&obj=18

New America Foundation (2010). Federal Education Budget Project. Retrieved from http://febp.newamerica.net/k12/SC/all

Office of First Steps (January 2005). Blue Print for South Carolina's Children's Update. Columbia, SC: Author.

Office of First Steps (December 2005). Publicly Funded Prekindergarten in South Carolina: Coordinating Resources for Greater Impact. Columbia, SC: Author.

South Carolina Department of Health and Environmental Control (August 11, 2009). *State's infant death rate up slightly.* Retrieved from http://www.scdhec.gov/administration/news/2009/nr20090811-01.htm

US Census Bureau (2010) Retrieved from http://www.census.gov/statab/ranks/rank29.html.

Appendix A: Participant Demographics by First Steps Strategy by Fiscal Year

Appendix A. Participant Demographics by First Steps Strategy by Fiscal Year

		2003-04		2004-05		2005-06		2006-07		2007-08	
Strategy	Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Full-day 4K	Male	1,071	52.5	325	49.6	225	50.0	394	49.1	454	51.8
	Non-White	1,210	59.3	375	57.3	302	67.1	614	76.5	662	75.6
	Medicaid	1,377	67.5	484	73.9	347	77.1	644	80.2	681	77.7
	TANF	191	9.4	60	9.2	44	9.8	74	9.2	84	9.6
	Food Stamps	841	41.2	352	53.7	245	54.4	480	59.8	568	64.8
	Foster Care	18	.9	2	.3	2	.4	2	.2	2	.2
	Low Birth Weight	197	10.2	61	9.5	45	11.5	78	11.4	106	13.8
	Special Needs[3]	13	.6	9	1.4	5	1.1	7	.9	8	.9
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	2,041	1.35	655	1.52	450	1.6	809	1.71	876	1.71
	Mother's Educ.[2]	1,938	11.91	640	11.75	392	11.51	682	11.61	763	11.65
½ Day 4K		*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
	Non-White	235	41.8	244	48.4	214	52.6	420	57.6	359	64.1
	Medicaid	355	63.2	346	68.7	277	68.1	550	75.4	414	73.9
	TANF	47	8.4	42	8.3	31	7.6	62	8.5	40	7.1
	Food Stamps	199	35.4	238	47.2	200	49.1	403	55.3	326	58.2
	Foster Care	8	1.4	3	.6	1	.2	0	0.0	3	.5
	Low Birth Weight	51	9.3	49	10.0	32	10.2	69	11.0	66	13.2
	Special Needs[3]	2	.4	6	1.2	2	.5	16	2.2	9	1..7
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	562	1.23	504	1.36	407	1.39	729	1.51	560	1.51
	Mother's Educ.[2]	533	11.72	488	11.62	311	11.55	629	11.42	500	11.56

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix A. Participant Demographics by First Steps Strategy by Fiscal Year (continued)

Strategy	Participant Characteristics	2003-04		2004-05		2005-06		2006-07		2007-08	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
PAT/PCH	Male	113	52.3	328	48.0	609	49.7	801	48.1	848	49.1
	Non-White	143	66.2	458	67.1	843	68.8	1,125	67.5	1,231	71.3
	Medicaid	181	83.8	543	79.5	969	79.0	1,335	80.1	1,371	79.4
	TANF	33	15.3	82	12.0	141	11.5	183	11.0	181	10.5
	Food Stamps	131	60.6	416	60.9	764	62.3	1,038	62.3	1,126	65.2
	Foster Care	3	1.4	1	.1	6	.5	7	.4	9	.5
	Low Birth Weight	21	10.1	72	11.2	128	11.5	178	11.5	193	12.0
	Special Needs[3]	5	2.3	6	.9	20	1.6	24	1.4	19	1.1
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	216	1.59	683	1.58	1,226	1.60	1,667	1.58	1,726	1.61
	Mother's Educ.[2]	207	11.30	640	11.46	1,111	11.59	1,536	11.40	1,605	11.40
Other		*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Parenting	Male	11	40.7	37	48.1	56	53.3	39	39.4	48	43.6
	Non-White	21	77.8	58	75.3	81	77.1	76	76.8	78	70.9
	Medicaid	25	92.6	63	81.8	85	81.0	85	85.9	80	72.7
	TANF	7	25.9	12	15.6	15	14.3	11	11.1	18	16.4
	Food Stamps	17	63.0	38	49.4	71	67.6	65	65.7	65	59.1
	Foster Care	1	3.7	1	0	0	0.0	2	2.0	1	.9
	Low Birth Weight	2	8.3	8	11.3	11	11.5	10	11.2	22	21.4
	Special Needs[3]	0	0.0	1	1.3	1	1.0	0	0.0	2	1.8
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	27	1.63	77	1.42	105	1.61	99	1.59	110	1.42
	Mother's Educ.[2]	25	11.72	77	11.69	96	12.00	88	11.58	103	11.93

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix A. Participant Demographics by First Steps Strategy by Fiscal Year (continued)

Strategy	Participant Characteristics	2003-04		2004-05		2005-06		2006-07		2007-08	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
Literacy	Male	11	50.0	27	45.0	48	51.1	80	46.0	163	51.7
	Non-White	13	59.1	23	38.3	61	64.9	125	71.8	253	80.3
	Medicaid	21	95.5	46	76.7	78	83.0	150	86.2	241	76.5
	TANF	7	31.8	7	11.7	10	10.6	24	13.8	34	10.8
	Food Stamps	17	77.3	34	56.7	57	60.6	116	66.7	219	69.5
	Foster Care	0	0.0	0	0.0	0	0.0	0	0.0	2	.6
	Low Birth Weight	3	14.3	7	13.0	10	12.0	9	5.8	38	13.4
	Special Needs[3]	1	4.5	0	0.0	3	3.2	1	.6	6	1.9
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	22	1.73	60	1.47	94	1.70	174	1.70	315	1.73
	Mother's Educ.[2]	21	10.38	54	10.63	93	10.81	154	10.77	281	11.47
Other Literacy		*N*	%	*N*	%	*N*	%	*N*	%	*N*	*N*
	Male	32	55.2	35	43.2	64	50.8	75	48.1	79	55.2
	Non-White	51	87.9	59	72.8	106	84.1	120	76.9	108	75.5
	Medicaid	53	91.4	66	81.5	102	81.0	121	77.6	107	74.8
	TANF	9	15.5	13	16.0	14	11.1	16	10.3	15	10.5
	Food Stamps	31	53.4	45	55.6	70	55.6	97	62.2	74	51.7
	Foster Care	0	0.0	1	1.2	0	0.0	17	0.0	0	0.0
	Low Birth Weight	7	13.0	7	9.5	7	6.5	17	13.4	18	14.8
	Special Needs[3]	0	0.0	1	1.2	2	1.6	1	.6	2	1.4
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	58	1.76	81	1.79	126	1.71	156	1.65	143	1.64
	Mother's Educ.[2]	54	11.74	72	11.26	105	11.30	125	10.97	121	10.73

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix A. Participant Demographics by First Steps Strategy by Fiscal Year (continued)

Strategy	Participant Characteristics	2003-04		2004-05		2005-06		2006-07		2007-08	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
Child Care	Male	36	54.5	52	52.0	65	59.1	116	49.2	168	51..7
	Non-White	49	74.2	74	74.0	33	70.0	199	84.3	274	84.3
	Medicaid	51	77.3	84	84.0	93	84.5	202	85.6	272	83.7
	TANF	4	6.1	8	8.0	10	9.1	10	4.2	26	8.0
	Food Stamps	33	50	60	60.0	54	49.1	157	66.5	202	62.2
	Foster Care	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0
	Low Birth Weight	5	8.8	11	12.9	7	9.0	24	12.1	34	11.0
	Special Needs[3]	0	0.0	0	0.0	109	.9	4	1.7	2	.6
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	66	1.61	100	1.46	110	1.59	236	1.71	325	1.63
	Mother's Educ.[2]	57	12.26	100	11.80	78	11.97	199	12.53	283	11.95
Health		*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
	Male	24	42.1	92	51.4	185	50.0	199	45.3	210	47.7
	Non-White	51	89.5	115	64.2	245	66.2	295	67.2	350	79.5
	Medicaid	53	93.0	128	71.5	253	68.4	339	77.2	351	79.8
	TANF	16	28.1	14	7.8	28	7.6	32	7.3	44	10.0
	Food Stamps	35	61.4	102	57.0	204	55.1	270	61.5	300	68.2
	Foster Care	2	3.5	0	0.0	2	.5	1	.2	2	.5
	Low Birth Weight	4	8.0	19	11.8	28	10.5	30	8.8	51	14.3
	Special Needs[3]	1	1.8	5	2.8	363	1.9	11	2.5	7	1.6
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	57	1.77	179	1.44	370	1.45	439	1.56	440	1.68
	Mother's Educ.[2]	48	11.54	158	11.30	265	11.37	337	11.34	356	11.21

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix A. Participant Demographics by First Steps Strategy by Fiscal Year (continued)

		2003-04		2004-05		2005-06		2006-07		2007-08	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
Other types	Male	21	52.5	17	40.5	44	48.9	45	41.7	61	55.5
	Non-White	38	95.0	37	88.1	82	91.1	12	88.9	100	90.9
	Medicaid	30	75.0	37	88.1	74	82.2	102	94.4	100	90.9
	TANF	8	20.0	3	7.1	9	10.0	18	16.7	12	10.9
	Food Stamps	19	47.5	29	69.0	66	73.3	81	75.0	77	70.0
	Foster Care	0	0.0	0	0.0	0	0.0	0	0.0	1	.9
	Low Birth Weight	4	10.8	4	9.5	13	15.9	22	21.8	19	18.3
	Special Needs[3]	0	0.0	0	0.0	88	2.2	3	2.8	2	1.8
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	40	1.70	42	1.81	90	1.72	108	1.75	110	1.70
	Mother's Educ.[2]	37	11.51	42	11.37	81	11.73	101	11.57	104	11.66

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix B: Demographics by Combined Primary First Steps Strategies by Fiscal Year

Appendix B. Demographics by Combined Primary First Steps Strategies by Fiscal Year

		2003-04		2004-05		2005-06		2006-07		2007-08	
Strategy	Child Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Full-day 4K Only	Male	992	52.2	200	52.1	106	50.5	126	51.4	109	54.8
	Non-White	1,097	57.8	167	43.5	120	57.1	185	75.5	128	64.3
	Medicaid	1,246	65.6	251	65.4	152	72.4	175	71.4	141	70.9
	TANF	164	8.6	25	6.5	15	7.1	11	4.5	14	7.0
	Food Stamps	758	39.9	169	44.0	103	49.0	130	53.1	108	54.3
	Foster Care	17	.9	1	0.3	0	0.0	0	0.0	0	0.0
	Low Birth Weight	190	10.6	34	9.0	16	9.1	20	10.7	11	7.4
	Special Needs[3]	11	.6	6	1.6	1	.5	1	0.4	2	1.0
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	1,899	1.33	384	1.36	210	1.48	245	1.68	199	1.54
	Mother's Educ.[2]	1798	11.95	375	12.04	175	11.49	187	11.93	148	11.75
½ -Day 4k Only		*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
	Male	278	57.6	95	54.9	n/a	n/a	49	51.0	34	50.7
	Non-White	190	39.3	68	39.3	n/a	n/a	42	43.8	35	52.2
	Medicaid	295	61.1	97	56.1	n/a	n/a	51	53.1	35	52.2
	TANF	39	8.1	16	9.2	n/a	n/a	5	5.2	5	7.5
	Food Stamps	160	33.1	69	39.9	n/a	n/a	40	41.7	31	46.3
	Foster Care	7	1.4	2	1.2	n/a	n/a	0	0.0	0	0.0
	Low Birth Weight	47	10.0	18	10.6	n/a	n/a	9	11.0	9	15.0
	Special Needs[3]	2	.4	4	2.3	n/a	n/a	0	0.0	0	0.0
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	483	1.21	173	1.20	n/a	n/a	96	1.18	67	1.22
	Mother's Educ.[2]	459	11.70	172	11.90	n/a	n/a	81	11.62	60	12.35

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix B. Demographics by Combined Primary First Steps Strategies (continued)

		2003-04		2004-05		2005-06		2006-07		2007-08	
Strategy	Child Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Full-day 4K + PAT	Male	26	55.3	68	45.6	76	47.2	141	45.8	176	50.3
	Non-White	31	66.0	110	73.8	118	73.3	212	68.8	256	73.1
	Medicaid	40	85.1	130	87.2	136	84.5	252	81.8	290	82.9
	TANF	10	21.3	20	13.4	18	11.2	37	12.0	36	10.3
	Food Stamps	30	63.8	104	69.8	102	63.4	189	61.4	246	70.3
	Foster Care	1	2.1	0	0	1	.6	1	0.3	1	0.3
	Low Birth Weight	1	2.2	15	10.2	23	15.1	33	11.7	51	15.4
	Special Needs[3]	1	2.1	1	0.7	1	.6	4	1.3	2	0.6
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	47	1.57	149	1.72	161	1.68	308	1.69	350	1.75
	Mother's Educ.[2]	46	11.17	146	11.42	151	11.52	280	11.52	329	11.5
½ -Day 4k + PAT		*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
	Male	22	44.0	98	51.6	84	49.4	165	51.9	130	52.8
	Non-White	24	48.0	112	58.9	96	56.5	181	56.9	147	59.8
	Medicaid	35	70.0	147	77.4	126	74.1	253	79.6	194	78.9
	TANF	3	6.0	18	9.5	18	10.6	35	11.0	22	8.9
	Food Stamps	22	44.0	100	52.6	86	50.6	184	57.9	146	59.3
	Foster Care	0	0.0	1	0.5	1	.6	0	0.0	3	1.2
	Low Birth Weight	3	6.4	18	9.8	15	10.1	36	12.0	27	11.7
	Special Needs[3]	0	0.0	1	0.5	1	.6	9	2.8	1	0.4
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
	Free Lunch Index[1]	50	1.38	190	1.49	170	1.47	318	1.58	246	1.55
	Mother's Educ.[2]	47	11.94	181	11.56	147	11.59	300	11.25	231	11.34

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix B. Demographics by Combined Primary First Steps Strategies (continued)

		2003-04		2004-05		2005-06		2006-07		2007-08	
Strategy	Child Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Full-day 4K	Male									34	47.9
+ Child Care	Non-White									58	81.7
	Medicaid									51	71.8
	TANF									2	4.2
	Food Stamps									35	49.3
	Foster Care									0	0.0
	Low Birth Weight									9	15.8
	Special Needs[3]									0	0.0
										N	*M*
	Free Lunch Index[1]									71	1.69
	Mother's Educ.[2]									57	12.02
½ -Day 4k								*N*	%	*N*	%
+ Child Care	Male							29	51.8	19	44.2
	Non-White							50	89.3	37	86.0
	Medicaid							49	87.5	33	76.7
	TANF							2	3.6	3	4.7
	Food Stamps							32	57.1	29	67.4
	Foster Care							0	0.0	0	0.0
	Low Birth Weight							7	15.9	5	13.2
	Special Needs[3]							3	5.4	0	0.0
								N	*M*	*N*	*M*
	Free Lunch Index[1]							56	1.55	43	1.63
	Mother's Educ.[2]							44	12.77	38	12.29

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix B. Demographics by Combined Primary First Steps Strategies (continued)

		2003-04		2004-05		2005-06		2006-07		2007-08	
Strategy	Child Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Full-day 4K	Male							24	55.8	54	55.1
+ Literacy	Non-White							37	86.0	87	88.8
	Medicaid							40	93.0	76	77.6
	TANF							6	14.0	9	9.2
	Food Stamps							28	65.1	66	67.3
	Foster Care							0	0.0	0	0.0
	Low Birth Weight							1	2.6	16	17.8
	Special Needs[3]							0	0.0	1	1.0
								N	*M*	*N*	*M*
	Free Lunch Index[1]							43	1.84	98	1.73
	Mother's Educ.[2]							37	10.70	88	12.10
Literacy Only								*N*	*M*	*N*	*M*
	Male									32	52.5
	Non-White									50	82.0
	Medicaid									47	77.0
	TANF									8	13.1
	Food Stamps									47	77.0
	Foster Care									0	0.0
	Low Birth Weight									8	14.5
	Special Needs[3]									1	1.6
										N	*M*
	Free Lunch Index[1]									61	1.72
	Mother's Educ.[2]									55	11.07

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix B. Demographics by Combined Primary First Steps Strategies (continued)

		2003-04		2004-05		2005-06		2006-07		2007-08	
Strategy	Child Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
CDEPP Only	Male									130	52.5
	Non-White									228	91.6
	Medicaid									191	76.7
	TANF									41	16.5
	Food Stamps									165	66.3
	Foster Care									5	2.0
	Low Birth Weight									21	9.8
	Special Needs[3]									2	0.8
										N	*M*
	Free Lunch Index[1]									249	1.63
	Mother's Educ.[2]									213	12.32

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix C: Demographics by 4-Year Old Kindergarten by Program Type by Fiscal Year

Appendix C. Demographics by 4-Year Old Kindergarten by Program Type by Fiscal Year

		2003-04		2004-05		2005-06		2006-07		2007-08	
Child Characteristics	FS Type	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Male	No First Steps and No 4K	14,551	50.8	15,133	49.9	15,311	50.3	14,923	50.1	14,343	50.6
	Non-First Steps 4K	8,147	52.7	7,727	52.7	7,873	53.0	9,610	52.7	9,638	52.6
	First Steps 4K	1,411	53.3	609	50.2	655	51.9	879	48.9	1,069	50.5
	First Steps without 4K	112	49.1	223	50.7	442	48.9	526	45.2	639	49.8
	Statistical Significance	*		**		**		**		**	
Non-White	No First Steps and No 4K	11,632	40.6	17,938	40.6	18,149	42.2	12,038	40.5	11,167	39.4
	Non-First Steps 4K	8,237	53.3	7,404	54.7	7,600	54.6	9,929	54.5	10,018	54.7
	First Steps 4K	1,481	56.0	566	53.8	493	63.8	1,225	68.1	1,575	74.4
	First Steps without 4K	177	77.6	120	73.5	225	74.0	815	70.0	965	75.3
	Statistical Significance	*		**		**		**		**	
Medicaid	No First Steps and No 4K	13,008	45.4	13,122	43.5	13,400	42.7	11,787	39.6	10,400	36.7
	Non-First Steps 4K	9,558	61.9	10,426	63.8	10,299	61.5	11,346	62.3	11,036	60.2
	First Steps 4K	1,761	66.6	877	71.7	1,017	74.7	1,414	78.6	1,639	77.4
	First Steps without 4K	196	86.0	351	77.7	687	79.4	919	79.0	998	77.8
	Statistical Significance	*		**		**		**		**	
TANF	No First Steps and No 4K	2,074	7.2	1,876	6.2	1,941	6.2	1,667	5.6	1,442	5.1
	Non-First Steps 4K	1,185	7.7	1,149	7.0	1,068	6.4	1,228	6.7	1,079	5.9
	First Steps 4K	242	18.4	110	9.0	116	8.5	162	9.0	214	10.6
	First Steps without 4K	42	9.1	53	11.7	109	12.6	126	10.8	136	10.1
	Statistical Significance	*		**		**		**		**	
Food Stamps	No First Steps and No 4K	7,997	27.9	9,764	32.3	10,495	33.4	9,498	31.9	8,826	31.1
	Non-First Steps 4K	5,607	36.3	7,126	43.6	7,177	42.9	7,987	43.8	8,041	43.9
	First Steps 4K	1,061	61.8	625	51.1	749	55.0	1,044	58.0	1,331	64.9
	First Steps without 4K	141	40.1	276	61.1	561	64.9	764	65.6	832	62.9
	Statistical Significance	*		**		**		**		**	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

Appendix C. Demographics by 4-Year Old Kindergarten by Program Type by Fiscal Year (continued)

		2003-04		2004-05		2005-06		2006-07		2007-08	
Child Characteristics	FS Type	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Foster Care	No First Steps and No 4K	128	0.4	53	0.2	65	0.2	61	0.2	56	0.2
	Non-First Steps 4K	73	0.5	39	0.2	40	0.2	60	0.3	82	0.4
	First Steps 4K	26	1.0	6	0.5	5	0.4	4	0.2	14	0.7
	First Steps without 4K	4	1.8	1	0.2	2	0.2	6	0.5	5	0.4
	Statistical Significance	**		—		—		*		*	
Low Birth Weight	No First Steps and No 4K	1,909	9.1	1,951	9.0	2,059	9.0	1,849	8.8	1,715	8.7
	Non-First Steps 4K	1,443	9.9	1,675	10.7	1,473	10.8	1,572	10.6	1,602	10.7
	First Steps 4K	259	10.3	113	9.5	127	11.0	179	11.5	231	12.3
	First Steps without 4K	26	12.9	51	13.1	82	10.8	115	11.1	151	13.1
	Statistical Significance	*		**		**		**		**	
Special Needs (Mental, Emotional, Physical , Autistic)	No First Steps and No 4K	212	0.7	163	0.5	225	0.7	160	0.5	176	0.6
	Non-First Steps 4K	285	1.8	333	2.0	424	2.5	512	2.8	447	2.4
	First Steps 4K	15	0.6	18	1.5	22	1.6	35	1.9	30	1.4
	First Steps without 4K	5	2.2	3	0.7	13	1.5	10	0.9	7	0.6
	Statistical Significance	*		**		**		**		**	
		N	*M*	*N*	*M*	*N*	*M*	*N*	*M*	*N*	*M*
Free Lunch Index[1]	No First Steps and No 4K	28,663	.89	30,192	.89	31,403	.89	29,741	.85	28,324	.83
	Non-First Steps 4K	15,451	1.24	16,335	1.30	16,744	1.28	18,225	1.30	18,331	1.29
	First Steps 4K	2,645	1.33	1,224	1.46	1,361	1.54	1,799	1.62	2,117	1.64
	First Steps without 4K	228	1.70	452	1.51	865	1.60	1,164	1.54	1,282	1.55
	Statistical Significance	*		**		**		**		**	
Mother's Education[2]	No First Steps and No 4K	20,881	12.6	21,630	12.76	22,689	12.76	21,018	12.85	19,682	12.91
	Non-First Steps 4K	14,561	12.07	15,469	12.09	13,585	12.15	14,809	12.11	14,951	12.11
	First Steps 4K	2,510	11.87	1,183	11.68	1,149	11.53	1,556	11.52	1,866	11.61
	First Steps without 4K	201	11.37	388	11.52	752	11.60	1,026	11.51	1,105	11.50
	Statistical Significance	*		**		**		**		**	

Note. **: $p < .01$; *: $p < .05$; †: $.05 > p < .10$; —: $p > .10$

[1]Free Lunch Index 0=no, 1=reduced, 2=free.

[2]Mother's education reported in mean years.

[3] Special Needs include mental, emotional, physical, or autistic disabilities

Appendix D: Demographics of Matched Samples by Fiscal Year

Appendix D. Demographics by First Steps 4K and Matched Non-First Steps Non-4K by Fiscal Year

	Fiscal Year									
	2003-04 *N*=2645 each		2004-05 *N*=1224 each		2005-06 *N*=1361 each		2006-07 *N*=1799 each		2007-08 *N*=2117 each	
	%		*%*		*%*		*%*		*%*	
Child Characteristics	FS 4K	Matched	FS 4K	Matched	FS 4K	Matched	FS 4K	Matched	FS 4K	Matched
Male	53.3	53.2	50.2	51.0	52.2	51.9	48.3	48.9	50.5	50.5
Non -White	56.0	56.2	53.8	53.3	63.8	63.3	68.1	68.2	74.4	74.6
Medicaid	66.6	67.6	71.7	71.7	74.7	74.6	78.6	78.7	77.4	77.3
TANF	9.1	8.3	9.0	7.4	8.5	8.4	9.0	8.2	10.1	10.1
Food Stamp	40.1	39.9	51.1	51.7	55.0	54.3	58.0	58.4	62.9	62.5
Foster care	1.0	1.1	0.5	0.2	0.4	0.1	0.2	0.2	0.7	0.5
Low birth weight	10.2	9.0	9.5	8.3	11.0	9.2	11.5	9.7	12.3	11.3
Special need placement	0.6	0.5	1.5	1.2	1.6	1.3	2.0	1.8	1.4	0.9
	M		*M*		*M*		*M*		*M*	
Age at Kindergarten	66.5	66.5	66.6	66.5	66.5	66.5	66.5	66.5	66.6	66.6
Mother Education	11.9	11.9	11.7	11.8	11.5	11.5	11.5	11.5	11.6	11.6
Free/reduced lunch	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6

Note. Special need placement=any diagnosed autism, or mental, emotional and physical impairment.
Free/reduced lunch: 2=free lunch received; 1= reduced lunch received; 0=none

Appendix D. Demographics by First Steps Non-4K and Matched Non-First Steps Non-4K by Fiscal Year

	Fiscal Year									
	2003-04 *N*=228 each		**2004-05** *N*=452 each		**2005-06** *N*=865 each		**2006-07** *N*=1164 each		**2007-08** *N*=1282 each	
	%		*%*		*%*		*%*		*%*	
Child Characteristics	FS 4K	Matched	FS 4K	Matched	FS 4K	Matched	FS 4K	Matched	FS 4K	Matched
Male	49.1	50.0	50.7	50.7	48.9	48.2	45.2	44.8	49.8	48.6
Non -White	77.6	78.9	73.5	73.7	74.0	74.0	70.0	69.5	75.3	75.7
Medicaid	86.0	85.5	77.7	79.6	79.4	79.7	79.0	79.0	77.8	78.2
TANF	18.4	18.9	11.7	11.5	12.6	11.6	10.8	10.4	10.8	9.9
Food Stamp	61.8	61.4	61.1	62.2	64.9	64.3	65.6	66.2	64.9	65.1
Foster care	1.5	0.9	0.2	0.0	0.2	0.1	0,5	0.3	0.4	0.4
Low birth weight	12.9	11.1	13.1	11.7	10.8	9.9	11.1	10.7	13.1	11.2
Special need placement	2.2	0.4	0.7	0.7	1.5	1.0	0.9	0.3	0.6	0.2
	M		*M*		*M*		*M*		*M*	
Age at Kindergarten (months)	65.9	65.6	66.2	66.1	66.2	66.4	66.5	66.5	66.4	66.3
Mother Education	11.4	11.5	11.5	11.4	11.6	11.6	11.5	11.5	11.5	11.4
Free/reduced lunch	1.7	1.7	1.5	1.5	1.6	1.6	1.5	1.5	1.6	1.6

Note. Special need placement=any diagnosed autism, or mental, emotional and physical impairment.
Free/reduced lunch: 2=free lunch received; 1= reduced lunch received; 0=none.

Appendix D. Demographics by CDEPP and Matched Non-First Steps by Fiscal Year

	Fiscal Year		
	2007-08 *N*=286 (each group)		
	First Steps	Matched Non-First Steps	
Child Characteristics	CDEPP	4K (Full-day)	Non-4K
Male	51.0	50.7	53.8
Non -White	91.6	91.6	92.3
Medicaid	78.3	76.6	77.6
TANF	16.4	16.1	15.4
Food Stamp	67.8	68.9	69.9
Foster care	2.1	1.4	1.4
Low birth weight	9.7	8.6	9.8
Special need placement	0.7	0.7	0.0
	M	*M*	*M*
Age at Kindergarten (months)	66.8	66.9	67.0
Mother Education	12.3	12.2	12.2
Free/reduced lunch	1.7	1.7	1.7

Note. Special need placement=any diagnosed autism, or mental, emotional and physical impairment. Free/reduced lunch: 2=free lunch received; 1= reduced lunch received; 0=none.


HIGHSCOPE®